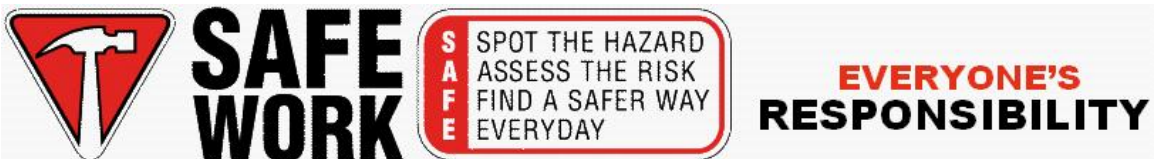


# MSI hazard Controls

Module #4

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## **MODULE #4**

### **MSI HAZARD CONTROLS**

#### **Introduction**

The successful control of risks for Musculoskeletal Injury (MSI) requires evaluating how the worker's body is affected by the work they do, and determining how to reduce any harmful affects that work may have. Risks for MSI can arise during any interaction between the worker and their environment, tools, materials, products, workstation, fellow workers, etc. Most risks for MSI can be evaluated in three general categories, as follows: force related hazards, posture related hazards, or repetition of similar movements. Every job contains elements from each category to some degree. When one of these elements exceeds the workers physical capabilities, the risk of injury is increased. Therefore, the control measure should be designed to keep the amount of each element within a worker's capability, thereby reducing the risk of injury. When considering MSI hazard controls, physical changes to the job are the most effective control measure. Physical changes to the job might include repositioning materials to reduce bending, reaching or twisting, changing the height of the working surface, or using a hoist to perform heavy lifts, etc. These physical changes must be supported with changes to policy, work procedure, and worker training in order to be effective. The purpose of MSI hazard controls is to reduce the impact of risks for MSI on the safety and health of the workforce by whatever means are reasonably practicable.

## **Rationale**

Musculoskeletal Injuries tend to have long recovery times, be costly to the company, and significantly disrupt the injured worker's life. Unless the risk for injury is controlled, the chance remains high that a similar MSI will occur in the future.

Risks for Musculoskeletal Injury are aspects of a job that *increase* the *chance* that a worker will suffer an injury. The Workplace Safety and Health Act, MR210 4(2) (<http://www.gov.mb.ca/chc/statpub/>) states: "Without limiting the generality of an employer's duty under subsection (1), every employer shall (a) provide and maintain a workplace, necessary equipment, systems and tools that are safe and without risks to health, so far as reasonably practicable..." Risks for MSI are risks to health.

Therefore, risks for MSI must be identified and controlled. For more information on the identification of risks for MSI see Workplace Safety and Health publications:

*Ergonomic Education Modules #1-3* or the guideline entitled, *Ergonomics: A guide to program development and implementation*, located online at:

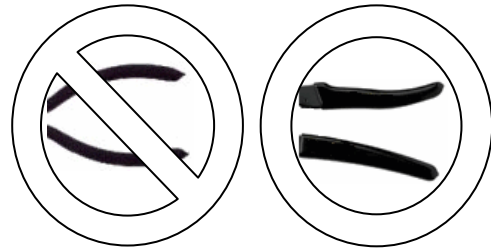
<http://www.gov.mb.ca/labour/safety/ergoguide.html>

## **MSI hazard controls**

The two main classes of MSI hazard controls are *engineering* and *work-practice*, as follows:

### **Engineering Controls**

Engineering controls are physical changes made to the job. These include, but are not limited to: altering the height of the work surface, installing a hoist, changing the shape of a tool, etc. By making physical changes to the job, the ergonomic risks are



*Example - Engineering Control*  
Changing the shape of the handle prevents it from 'digging' into the hand.

reduced or eliminated. Since engineering controls usually require an expenditure of capital it is advisable to perform an ergonomic hazard analysis on proposed changes before they are implemented. Consulting the workers and supervisors affected by the control measure will ensure the most successful control measure possible.

### **Work-Practice Controls**

Work-practice controls require a change in the worker's behavior rather than a change in the working environment, with the goal of reducing worker exposure to risks for MSI. Work-practice controls are used to support engineering controls or in situations where engineering controls are not reasonably practicable. Work-practice controls do not physically affect the ergonomic hazard, but rather the amount of exposure the worker has to that hazard. For

example, a policy on job rotation does not change the number of repetitions per hour a worker will do while performing a particular job task, rather, it limits the number of hours spent performing that specific repetitive action.

The most common work-practice control is written policy. To use policy as a hazard control, the best-practice(s) for a job must be established, put into writing, trained upon, and enforced. Policy should be drafted and enforced to prevent employees from taking short-cuts that appear to save time, but greatly increase the worker's exposure to a risk for musculoskeletal injury. An example of this would be workers lifting or carrying something by themselves when they have been told to ask for assistance. Another example of a common work-practice control is job rotation. Job rotation is the system whereby workers change their job duties at regular intervals. The theory behind job rotation is to reduce the amount of time that a worker is exposed to any one hazard, thereby giving specific areas of the body a rest while performing work with others. Job rotation is most effective when workers rotate throughout the day, instead of changing jobs by shift or week. For maximum effectiveness, job rotation will rotate workers through jobs that use significantly different movements from the previous job. Employee training and education are also part of work practice controls. Remember that work-practice controls require significant buy-in and re-enforcement from both the workers and their supervisors.

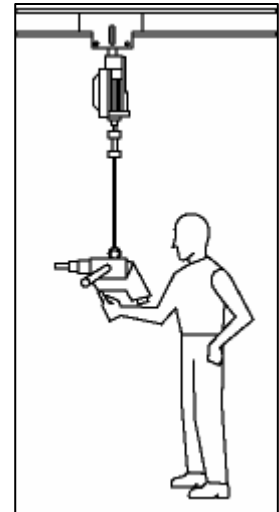
## Step-by-Step Procedure to Controlling Risks for MSI

1. Identify the risks for MSI present within the job. [Modules #1-3]
2. Explain to the workers the risks for MSI present in their work and ask them if they have any thoughts or suggestions as to how to reduce these hazards.
3. Brainstorm control measures that reduce the ergonomic hazard(s) in question.

- Ensure the ergonomic hazard is controlled in a way that its impact on the worker's body is minimized.

Where possible:

- Reduce the distance that workers are required to reach.
- Reduce the amount of weight the worker is required to handle, using:
  - i. Mechanical Hoists, Tool balancing, etc.
- Reduce the distance that workers carry objects, by:
  - i. Location of materials, providing material handling carts, etc.
- Reduce hazardous postures that arise due to:
  - a. Height of work surface
    - Preferable Control Measures: raised work surface for precision or detail work; lowered for force-based tasks.
  - b. Design of tool
  - c. Twisting the trunk
  - d. The stoop-lift versus the squat-lift.



Tool Balancer



Squat Lift

- Reduce the number of repetitions that a worker will perform by introducing properly designed job rotation schedules.
4. Perform an ergonomic risk analysis on the proposed ergonomic control to ensure that there has been a measurable reduction in overall ergonomic risk.
  5. Brief the workers and supervisors affected by the ergonomic control to ensure their understanding. The affected workers and supervisors are the best equipped to determine the practicability of, and potential difficulties with the ergonomic control.

### **Self-Checks**

- All risks for MSI have been identified and controlled.
- All attempts have been made to make physical changes to reduce or eliminate hazards (engineering controls).
- Engineering Controls have been supported with policy and training (work-practice controls).
- Workers that will be affected by proposed control measures have participated in the development of the control measures.
- Training has been developed to support and reinforce the MSI hazard controls.
- A follow-up analysis has been performed on the MSI hazard controls prior to their implementation.

### **The Next Step(s)**

When management and the workforce see positive results from successful MSI hazard controls there will be an increased buy-in to the ergonomic process. It is therefore important to ensure that the first jobs that have MSI hazard controls implemented are visibly successful. The knowledge and skills gained from the ergonomic hazard control process is highly transferable, and should be applied when jobs within the workplace are changing or being introduced. It is easier, and requires fewer resources, when MSI hazard controls can be implemented in the design stage of a job or process.

**Note:**

MSI hazard controls that are implemented must be supported with policy and direct reinforcement from supervisors in order to have maximum effectiveness. People in general are wary of change, and the more they can be included in the change process the more willing they are to accept change. Supervisors must be made aware of the MSI hazard controls, the purpose of the controls and why the job has changed so as to ensure compliance from the workers.

*For more detailed instructions consult the Ergonomics Guideline which can be located on-line at <http://www.gov.mb.ca/labour/safety/ergonomic.html>*