



## Assessing the risk of sprains and strains

### Introduction

#### **What is musculoskeletal injury (MSI)?**

*Musculoskeletal injury*, or *MSI* for short, is the term used to describe soft tissue injuries that are commonly known as sprains or strains. For example, an ankle sprain is an MSI. So is a strained back. In construction, MSI often occurs in the lower back but it can also occur in other parts of the body, such as the shoulders, wrists, or knees.

#### **Why is MSI a concern in construction?**

MSI is the leading cause of time-loss injury for workers in the construction sector, representing 18% of compensation costs. The uninsured costs (those costs not covered by WorkSafeBC insurance), such as replacement personnel and the human costs in terms of pain and disability, are often significantly more substantial.

#### **Who should read this bulletin?**

Although employers are primarily responsible for preventing MSI in the workplace, they are not the only ones who need to know about MSI prevention. Others who should read this bulletin include:

- Prime contractors
- Contractors
- Suppliers
- Occupational health and safety advisors
- Workers

#### **What do employers need to do about MSI?**

If you are an employer, you need to take steps to reduce MSI at your work sites. You can reduce MSI by taking three basic steps:

1. Identify hazards
2. Assess the risks
3. Control the risks

#### **What are hazards and risks?**

A *hazard* is any thing or condition that has the potential to cause injury to workers. For example, a hole in a floor that does not have a cover or guardrails is a hazard. A *risk* is the chance of an injury occurring when a hazard is present. Risks take into account how likely a hazard is to cause injury, who might be injured, and how serious the injury might be.

### Step 1: Identify hazards

The first step in preventing MSI is to look for hazards that may put workers at risk of injury. There are two ways to identify hazards: by looking at past injuries and by looking at how workers do tasks.

#### **Looking at past injuries**

Past injuries may indicate hazards that are still present at your work site. For example, if in the past workers have strained their backs moving drywall to an upper level, the same thing could happen again unless you take steps to prevent it.



*Manual handling injuries account for most sprains and strains.*

Find out what injuries occurred in the past by using available information sources:

- Check injury statistics.
- Check first aid records.
- Read incident investigation reports.
- Talk with supervisors and workers during site meetings or informal discussions.

### **Looking at how workers do tasks**

You may be able to identify hazards by looking at how workers do tasks. For example, if you watch workers installing ductwork, you may notice that the job involves a lot of heavy overhead reaching. This may put workers at risk of straining their backs and shoulders.

#### **Accident investigation**

It is best to look for hazards before an accident or injury happens. However, after an accident or injury has already happened, the employer must identify the types of activity that caused or contributed to the accident. Once the employer knows what led to the accident, steps can be taken to prevent it from happening again.

## **Step 2: Assess the risks**

A risk assessment will help you determine the aspects of a task that could cause injury to workers. These aspects are called *risk factors*. A risk assessment will also help you determine how likely the risk factors are to cause injury. Even though there are many hazards on a typical work site, not all of them pose a high level of risk. A risk assessment should establish what aspects of a task pose a risk, as well as whether existing measures are sufficient to control the risk or whether further measures are needed.

A sample MSI risk assessment form on page 5 shows an assessment for installation of ductwork on a ceiling. There is a blank risk assessment form on page 6 that you can photocopy and use to do your own MSI risk assessments.

### **Looking for risk factors**

When you are assessing risks, look for risk factors in the following four categories:

- **Physical demands of the task** – Does the task involve reaching, bending, stooping, stretching, or twisting?



*Working for a long time in an awkward position increases the risk of injury.*

- **Characteristics of the load** – Is the load heavy, bulky, or awkward? Are the contents of the load likely to shift?
- **Work environment** – Is the work surface uneven or slippery? Is the environment too hot or cold?
- **Work organization** – Can the work be paced better or scheduled to reduce the repetition or duration of fixed or awkward postures (for example, drilling for a long time at an awkward angle)?

### **Considering the significance**

You may find one or more risk factors for a single task. However, just because a task has risk factors does not necessarily mean it poses a significant risk of MSI. You need to consider a task's magnitude, frequency, and duration to determine the level of risk.

- **Magnitude** – How great is the risk (for example, how much force is needed)? How many risk factors does the task present?
- **Frequency** – How often is the task done?
- **Duration** – How long does the task last?

In general, the longer that workers are exposed to risk factors, the higher their risk of injury.

A *significant risk* means that the risk of injury is moderate or high. If a task has risk factors present but never, or rarely, causes injury, it can usually be considered low risk.

### **Does every task require a risk assessment?**

Not every task requires a risk assessment – just tasks that workers do, or may do, that pose a significant risk of injury.

## Using generic risk assessments

It doesn't make much sense to carry out a new risk assessment every time a similar activity occurs. If one task is essentially similar to another task, you can use a generic risk assessment for both tasks. A generic risk assessment is an assessment you do one time to establish the risk factors common to similar tasks.

## How detailed does an assessment need to be?

Your risk assessments do not have to be complicated. All you have to do is establish:

- What the significant hazards are
- How dangerous the risks are
- Whether or not you are doing everything that can reasonably be done to control the risks

Simple tasks may not require as detailed an assessment as complex tasks. Also, tasks with known risk factors and easy-to-implement measures to control the risk may be easier to assess.

For example, moving drywall to upper levels on new construction projects can be a physically demanding task. However, if the prime contractor arranges for a drywall hatch during construction, workers can use a mechanical boom to lift the drywall into the building. This eliminates much of the handling risk and simplifies the risk assessment.

## Do I need to record the assessment?

If the risks of MSI are low or measures to control the risk are easy to repeat, you do not have to write down the risk assessment. If the risk of MSI is significant or the control measures are more complex, the assessment should be written. Written records can be useful if a WorkSafeBC officer asks to review your risk assessments.

## What if my workers work at various locations and around other employers' workers?

Employers should identify the activities that can reasonably be expected to present a risk of MSI to workers. This can be included as part of the coordination activities with the prime contractor or site owner. If additional hazards are found at the site (for example, the layout does not allow for boom truck delivery, resulting in increased handling of materials), discuss this with the prime contractor and take whatever steps are necessary to control the risks.



*Bending your back instead of your knees increases the risk of injury when you are lifting materials.*

## Step 3: Control the risks

Employers must eliminate or minimize the risks of MSI in the workplace; this is done using *risk controls*. For example, a hoist to lift materials is an engineering control to reduce handling; using two people instead of one to carry a load is an administrative control. Always try to eliminate risks first. If that is not reasonably possible, then minimize the risks. As an employer, ask yourself, "Am I doing everything that is reasonably possible to control the risk?"

Effective risk assessments provide the information needed to determine effective risk controls.

An important part of controlling the risk is the development of safe work procedures.

## Developing generic safe work procedures

Generic safe work procedures are a set of procedures that you can use for more than work site as long as the tasks are essentially similar—for example, installing ductwork in different buildings. A generic risk assessment should give you information about hazards that need to be controlled when developing generic safe work procedures for the similar tasks.

Safe work procedures should include information on how the work is to be carried out. They should also describe the engineering controls and equipment necessary for the work to be carried out safely. Many prime contractors now require subcontractors to submit safe work procedures before starting a job.



### ***How can I eliminate or minimize risks?***

Asking the following questions will help you find ways to eliminate or minimize risks:

- Can material handling activities be eliminated?
- Are materials delivered as close as possible to where they will be used?
- Can carrying distances be reduced?
- Can dollies and carts be used to carry materials?
- Can equipment such as cranes, mobile hoists, or forklifts be used to move loads or otherwise make the task easier?
- Can extra workers help handle loads?
- Are handles or lifting hooks available to carry materials?
- Are chutes, pulleys, or conveyors available to move loads?
- Can weights of loads handled by workers be limited to 25 kg?
- Are handling tasks organized to eliminate or minimize “double handling”?
- Are routes kept clear for access of workers and equipment?



*Mechanical equipment to do the lifting can reduce the risk of injury.*

### **For more information**

For more information on signs and symptoms of MSIs and identifying risk factors, see *Understanding the Risks of Musculoskeletal Injury (MSI): An Educational Guide for Workers on Sprains, Strains, and Other MSIs*. For more help understanding risk identification, assessment, and control options, see the WorkSafeBC publication *Preventing Musculoskeletal Injury (MSI): A Guide for Employers and Joint Committees*.

For electronic PDFs of WorkSafeBC publications and other *Constructive Ideas* bulletins, visit [www.WorkSafeBC.com](http://www.WorkSafeBC.com).

## (Sample) MSI RISK ASSESSMENT

Task		Installing ductwork on the ceiling	
Signature of assessor	Date	March 23, 2004	

  

1. Identify hazards	2. Assess the risks	3. Control the risks
<p>Describe the tasks and identify the hazards that workers may encounter while doing their job.</p> <ul style="list-style-type: none"> <li>--- Transporting pre-assembled ductwork and equipment to the site.</li> <li>--- Lifting ductwork into position and supporting it.</li> <li>--- Drilling holes into the concrete ceiling for the placement of anchors.</li> </ul>	<p>Look at the physical demands of the task, characteristics of the load, work environment, and work organization. How many risk factors are present? How often is the task done? How long does it last?</p> <ul style="list-style-type: none"> <li>--- Risk of injury from awkward postures as well as from lifting and handling ductwork.</li> <li>--- Risk of injury to lower back and shoulders from handling heavy, unwieldy ducting.</li> <li>--- Risk of injury to shoulders and neck from prolonged overhead reaching and holding while drilling holes in the concrete ceiling.</li> </ul>	<p>Are existing risk controls sufficient or does more have to be done? Can you eliminate the risks? If not, how can you minimize them?</p> <ul style="list-style-type: none"> <li>--- Use dollies and carts to transport materials and equipment to work site.</li> <li>--- Use a floor-mounted hoist to support and position the ductwork.</li> <li>--- Investigate feasibility of using a fork-lift truck to lift ductwork into position.</li> <li>--- Provide a sufficient working base for workers, minimizing reach distances.</li> <li>--- Use drill extensions to reduce the overhead reach of workers.</li> <li>--- Have workers change the hand they use to hold the drill.</li> <li>--- Where feasible, arrange with the prime contractor or architect to have anchor platforms precast in the concrete.</li> </ul>
<p><b>Education:</b> Are workers aware of the risks associated with the work?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><b>Training:</b> Have workers been trained in the safe work procedures?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><b>Evaluation:</b> Do workers still show signs and symptoms of injury?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>

## MSI RISK ASSESSMENT

Task			
Signature of assessor		Date	

  

1. Identify hazards	2. Assess the risks	3. Control the risks
Describe the tasks and identify the hazards that workers may encounter while doing their job.	Look at the physical demands of the task, characteristics of the load, work environment, and work organization. How many risk factors are present? How often is the task done? How long does it last?	Are existing risk controls sufficient or does more have to be done? Can you eliminate the risks? If not, how can you minimize them?
<b>Education:</b> Are workers aware of the risks associated with the work? <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Training:</b> Have workers been trained in the safe work procedures? <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Evaluation:</b> Are the risk controls effective? Do workers still show signs and symptoms of injury? <input type="checkbox"/> Yes <input type="checkbox"/> No