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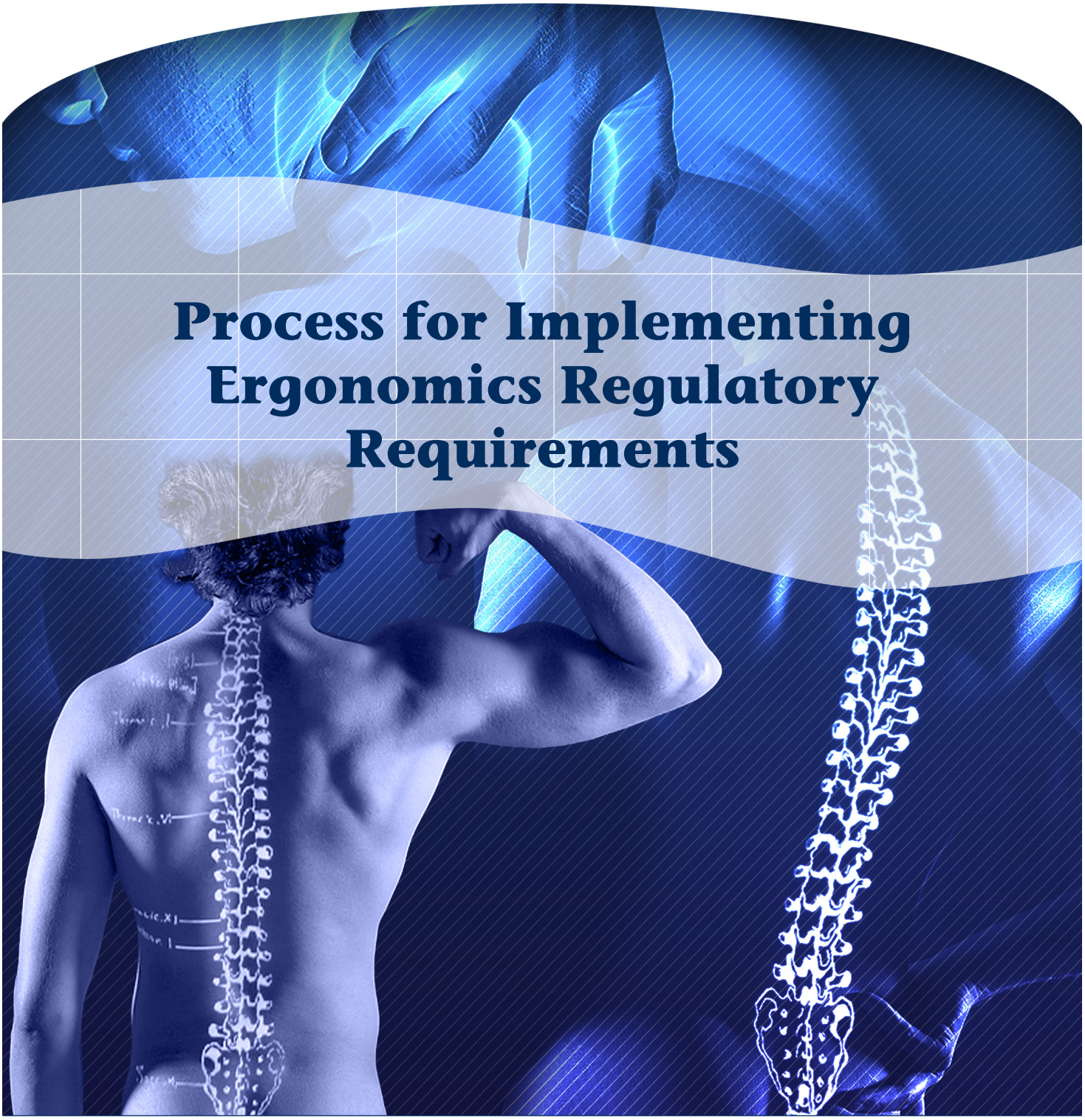
Labour



Process for Implementing Ergonomics Regulatory Requirements

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Process for Implementing Ergonomics Regulatory Requirements

Notice to Reader

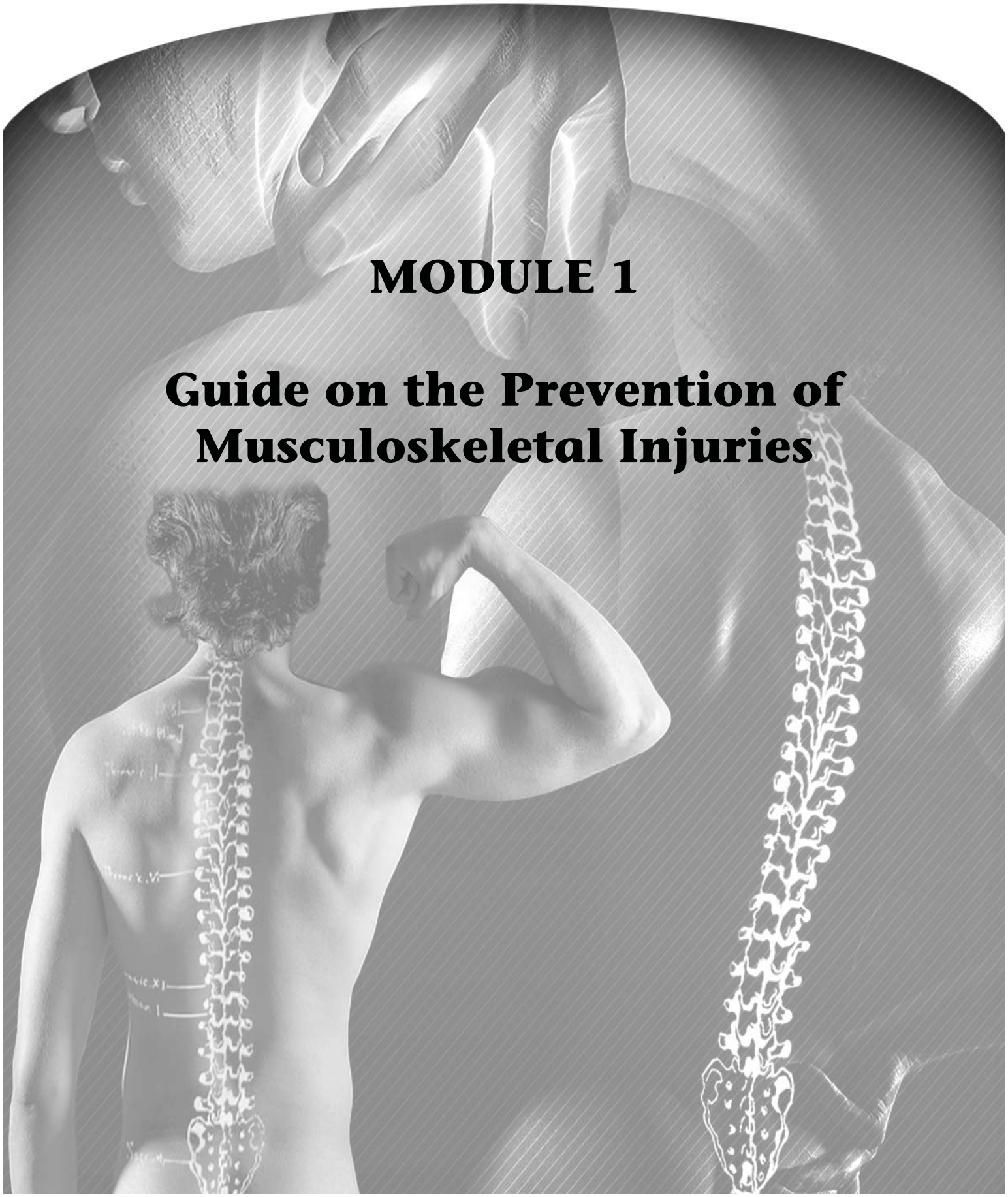
Part II of the *Canada Labour Code* deals with occupational health and safety. Its purpose is to "prevent accidents and injury to health arising out of, linked with or occurring in the course of employment at federally regulated employers." One of the issues covered by Part II of the Code and by the related *Canada Occupational Health and Safety Regulations* is the matter of ergonomics.

This guide is designed to familiarize employers, members of a policy or work place committee, or health and safety representatives with the regulation in regards to ergonomics.

Under Part XIX of the Regulations entitled *Hazard Prevention Program*, employers are responsible for developing, implementing and monitoring a program for the prevention of hazards, including ergonomics-related hazards, in the work place with the following components:

- an implementation plan;
- a hazard identification and assessment methodology;
- hazard identification and assessment;
- preventive measures;
- employee education; and
- a program evaluation.

This guide will also help you better understand these regulatory requirements.



MODULE 1

Guide on the Prevention of Musculoskeletal Injuries

Guide on the Prevention of Musculoskeletal Injuries

Many hazards in the work place can lead to employee injuries. Part XIX of the *Canada Occupational Health and Safety Regulations* outlines a hazard prevention program for employers under federal jurisdiction. In December 2007, Part XIX (commonly known as the *Hazard Prevention Program Regulations*) was amended to include ergonomics-related hazards, which can cause musculoskeletal injuries.

> *A **musculoskeletal injury (MSI)** is an injury or disorder of the musculoskeletal system. The **musculoskeletal system** includes muscles, tendons, blood vessels, ligaments, nerves, joints, spinal discs and related soft tissue.*

Other common terms used for musculoskeletal injuries are:

- Musculoskeletal disorders (MSD);
- Cumulative trauma disorder (CTD);
- Repetitive strain injury (RSI);
- Occupational overuse syndrome;
- Sprain and strain.

This guide *does not cover* musculoskeletal injuries that result directly from:

- Falling, slipping or tripping;
- Being struck by an object or knocked against something;
- Being caught in or on something; or
- Being in a vehicle accident.

The hazards that can cause MSIs are usually associated with the physical demands of work activities. For example, employees may injure themselves by:

- Lifting or pushing loads that require excessive force;
- Reaching or bending in an awkward posture;
- Holding the same position for a long time; or
- Repeating the same movements over and over with little chance for rest or recovery.

Through the application of ergonomics principles, the risk of injury posed by such hazards can be eliminated or reduced.

> ***Ergonomics** is the scientific study of the relationship between people and their working environment with a view to improving safety, ease of action and efficiency.*

For work places under federal jurisdiction, MSIs represent about 30% of all work-related injuries accepted for compensation. This reflects considerable pain and suffering for the injured workers. It also reflects significant costs to employers for compensation and other expenses as a result of employees being off work.

The incidence of MSIs in a particular work place may be much higher or lower than the average depending on factors such as the effectiveness of the health and safety program and the type of work done in that work place.

Implementing good MSI prevention strategies will help to reduce the number of MSIs and save employers money.

Employer costs due to MSIs include:

Insurance-related costs

- Insurance coverage;
- Premium surcharges for poor health and safety performance.

Wage costs

- Paying employees on the day they are injured;
- Continuing benefits while employees are away with injury;
- Paying replacement employees.

Administrative costs

- Training and orienting replacement employees;
- Investigating and reporting on injuries;
- Completing forms and reports required by government agencies and insurance providers.

Lower production, quality of service or product quality

- Loss of experienced employees;
- Disruptions to production while finding and training replacement employees;
- Assignment of production-line employees to other duties such as conducting hazardous occurrence investigations.

Lost business

- Damage to reputation;
- Negative impact on staff morale;
- Adverse labour relations environment.

An employer that is successful in preventing MSIs will not have to waste valuable financial resources paying these costs.

Purpose of the Guide

The purpose of the *Guide on the Prevention of Musculoskeletal Injuries (MSIs)* is to help work places establish a MSI prevention program that is effective and will meet the requirements of the *Hazard Prevention Program Regulations* (HPPR) with respect to ergonomics-related hazards.

In each section of the Guide, the applicable sections of the Regulations are provided for reference. The Guide also includes best practices for developing and implementing an MSI prevention program. The words "**should**" and "**recommended**" are used to identify these best practices.

Some work places already have a MSI prevention program. In that case, the Guide can be helpful in evaluating whether the program includes everything the Regulations require with respect to ergonomics-related hazards. The Guide may also draw attention to areas where the program can be improved.

For work places that do not yet have a MSI prevention program, the Guide can be used as a roadmap for developing and implementing a program that will meet the regulatory requirements.

The Guide highlights only those aspects of the hazard prevention program that are specific to ergonomics-related hazards. It does not cover aspects such as record keeping and periodic review of the employee education program, which apply to all hazards.

MSI Prevention – Getting Started

For on-going success in preventing musculoskeletal injuries, work places need to take a program approach. The *Hazard Prevention Program Regulations* (HPPR) provide the framework for such a program.

> ***Section 19.1 of the Regulations***
>
> *The employer shall, in consultation with and with the participation of the policy committee, or, if there is no policy committee, the work place committee or the health and safety representative, develop, implement and monitor a program for the prevention of hazards, including ergonomics-related hazards, in the work place that is appropriate to the size of the work place and the nature of the hazards and that includes the following components:*
>
> - *an implementation plan;*
> - *a hazard identification and assessment methodology;*
> - *hazard identification and assessment;*
> - *preventive measures;*
> - *employee education; and*
> - *a program evaluation.*
>
> *Subsection (1) applies in respect of every work place controlled by the employer and, in respect of every work activity carried out by an employee in a work place that is not controlled by the employer, to the extent that the employer controls the activity.*

Under the Regulations, the program must be developed, implemented and monitored "**in consultation with** and **with the participation of**" the policy committee. (If there is no policy committee, the employer shall call upon the work place committee or the health and safety representative.)

In addition, the program must include a number of parts:

- An implementation plan;
- Hazard identification and assessment methodology;
- Hazard identification and assessment;
- Preventive measures;
- Employee education;
- Program evaluation.

The first step is to establish an implementation plan that includes all these parts, in a logical order that will make the process easier.

Section 19.3(1) of the Regulations requires several sources of information to be taken into account in developing the methodology. To ensure that information from these sources is useful and will make the program more effective, employee education should take place early in the implementation process. Employee education includes training for those who conduct work place inspections, such as health and safety committee members.

The flow chart on page 7 entitled *Hazard Prevention Program for Ergonomics-Related Hazards* gives an overview of the implementation process recommended in this Guide.

Implementation Plan

Section 19.2 of the Regulations

The employer shall:

- *develop an implementation plan that specifies the time frame for each phase of the development and implementation of the prevention program;*
- *monitor the progress of the implementation of the preventive measures; and*
- *review the time frame of the implementation plan regularly and, as necessary, revise it.*

In implementing the prevention program, the employer shall ensure that ergonomics-related hazards are identified and assessed and that they are eliminated or reduced, as required by subsection 19.5(1), as much as reasonably possible and that any person assigned to identify and assess ergonomics-related hazards has the necessary instruction and training.

The implementation plan for the MSI prevention program must include the following components, in this **recommended** order:

STEP 1: Process for consultation with and participation of the policy committee (or the work place committee or the health and safety representative) during each step of the program.

STEP 2: Education of employees and health and safety committee members.

STEP 3: Methodology for hazard identification and assessment.

STEP 4: Hazard identification and assessment.

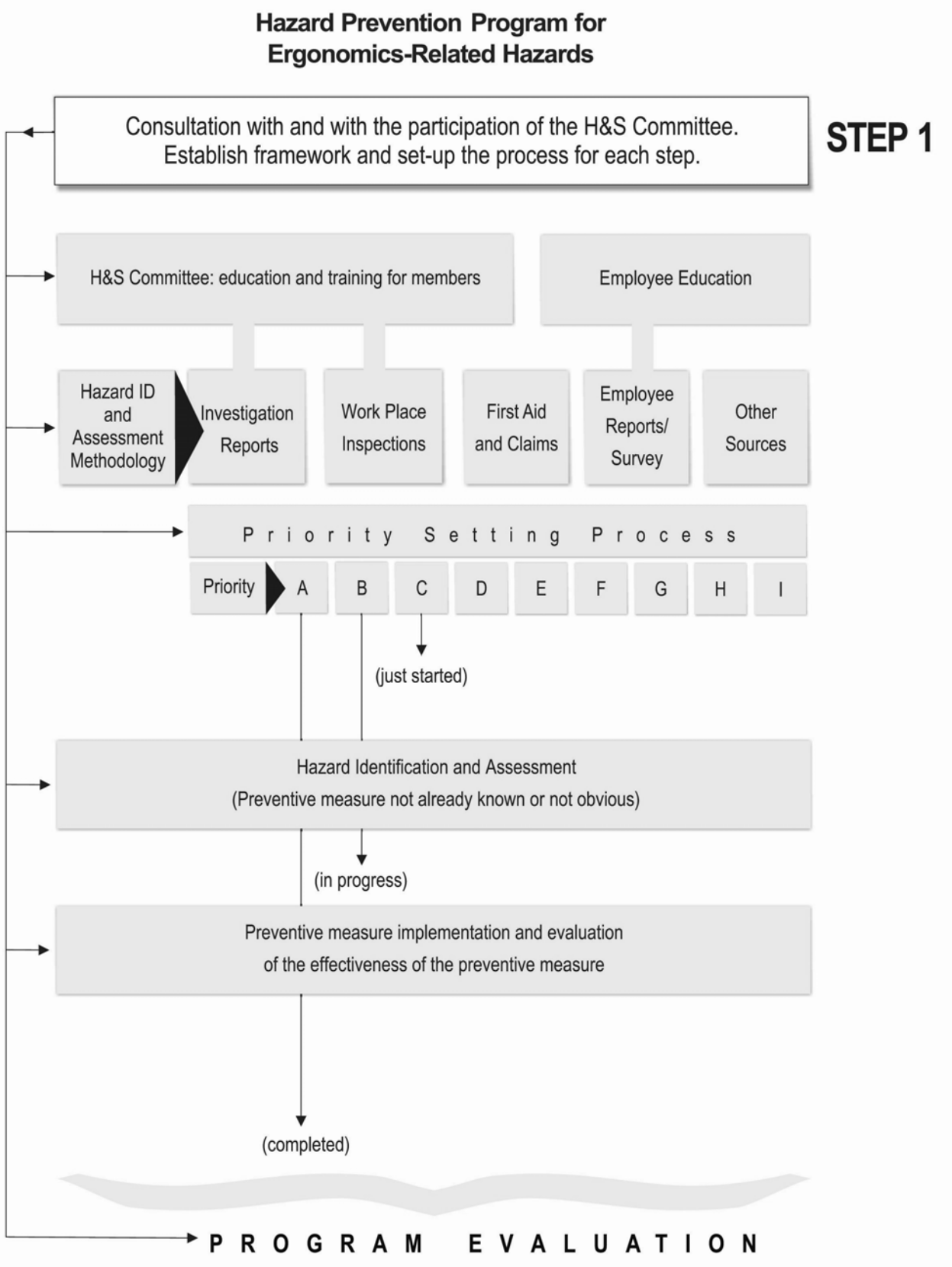
STEP 5: Preventive measures.

STEP 6: Program evaluation.

The implementation plan must establish time frames for each phase in the development and implementation of the program. Be realistic in establishing the schedule. If the hazard prevention program at the work place has never included MSI prevention, it may take a few years to address all the ergonomics-related hazards.

The size and complexity of the work place, as well as other health and safety priorities, will be factors in the time required. If most employees in the work place perform roughly the same tasks, it may not take as long to implement the program and address the ergonomics-related hazards.

The implementation plan must be monitored periodically to ensure that the process is on schedule. If for some unforeseen reason the time frames in the implementation plan cannot be met, they may need to be revised.


Hazard Prevention Program for
Ergonomics-Related Hazards
Consultation with and with the participation of the H&S Committee.
Establish framework and set-up the process for each step.
STEP 1
H&S Committee: education and training for members
Employee Education
Hazard ID and Assessment Methodology
Investigation Reports
Work Place Inspections
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Priority Setting Process
Priority
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(just started)
Hazard Identification and Assessment
(Preventive measure not already known or not obvious)
(in progress)
Preventive measure implementation and evaluation
of the effectiveness of the preventive measure
(completed)
PROGRAM EVALUATION

Step 1: Consultation and Participation

The *Canada Labour Code,* Part II and the *Canada Occupational Health and Safety Regulations* are based on a system of **internal responsibility**. In such a system, the employer works in cooperation with employee representatives to address work place hazards and reduce risks to employees. This means the employer must consult and involve the policy committee (or, if there is no policy committee, the work place committee or the health and safety representative) at each stage in developing, implementing and monitoring the MSI prevention program.

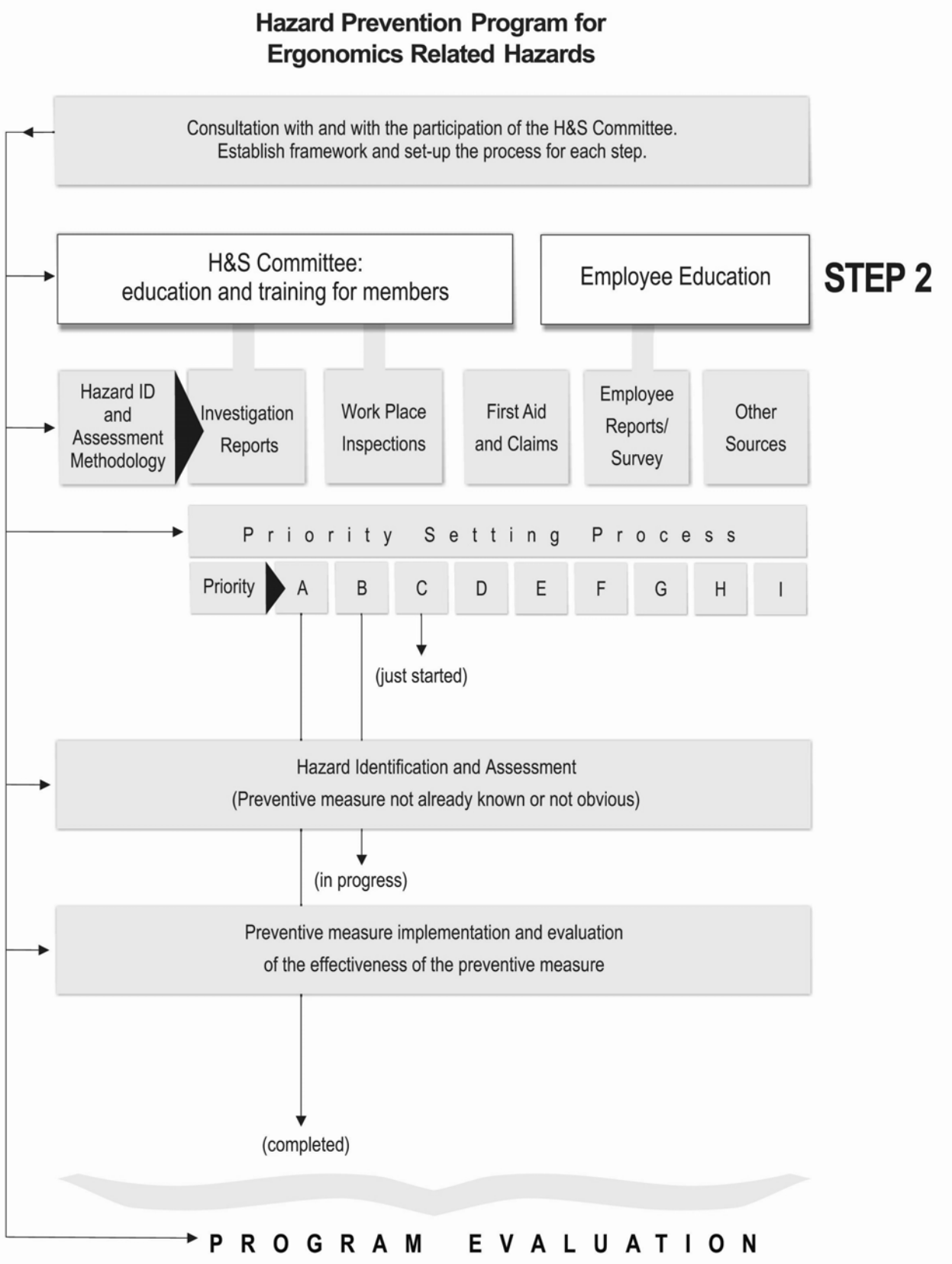
It is a good idea for health and safety committee members involved in the work place program to have a good knowledge of MSI prevention principles, for several reasons. First, it will help them contribute more effectively when they take part in developing and implementing the hazard prevention program. Second, it will assist them during inquiries, investigations, studies and inspections they must help carry out pertaining to ergonomics-related hazards. Information from these activities is to be taken into account in the development of the methodology for hazard identification and assessment.

For the program to be successful, it is therefore **recommended** that the committee members who participate in the process be given the training that will enable them to carry out their responsibilities proficiently. These committee members **should**:

- Understand the implementation plan;
- Be able to identify ergonomics-related hazards in the work place in order to participate in MSI investigations, work place inspections and similar tasks;
- Understand and be able to conduct basic assessment of ergonomics-related hazards so that they can be effective in performing their duties as committee members; and
- Be familiar with the system being used by employees to report MSIs and ergonomics-related hazards in the work place.

If the committee members are also to be responsible for conducting detailed hazard assessments, they must be trained in the methods used for such assessments.

There is a third reason for making sure committee members know all about ergonomics-related hazards and MSI prevention: the employer can then have *them* deliver the employee education on ergonomics that is required under section 19.6 of the Regulations.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PROGRAM EVALUATION

Step 2: Employee Education

Section 19.6 of the Regulations

The employer shall provide health and safety education, including education relating to ergonomics, to each employee which shall include the following:

- *(a) the hazard prevention program implemented in accordance with this Part to prevent hazards applicable to the employee, including the hazard identification and assessment methodology and the preventive measures taken by the employer;*
- *(b) the nature of the work place and the hazards associated with it;*
- *(c) the employee's duty to report under paragraphs 126(1)(g) and (h) of the Act and under section 15.3; and*
- *(d) an overview of the Act and these Regulations.*

The employer shall provide education to an employee

- *(a) whenever new hazard information in respect of a hazard in the work place becomes available to the employer; and*
- *(b) shortly before the employee is assigned a new activity or exposed to a new hazard.*

The employer shall review the employee education program, and, if necessary, revise it

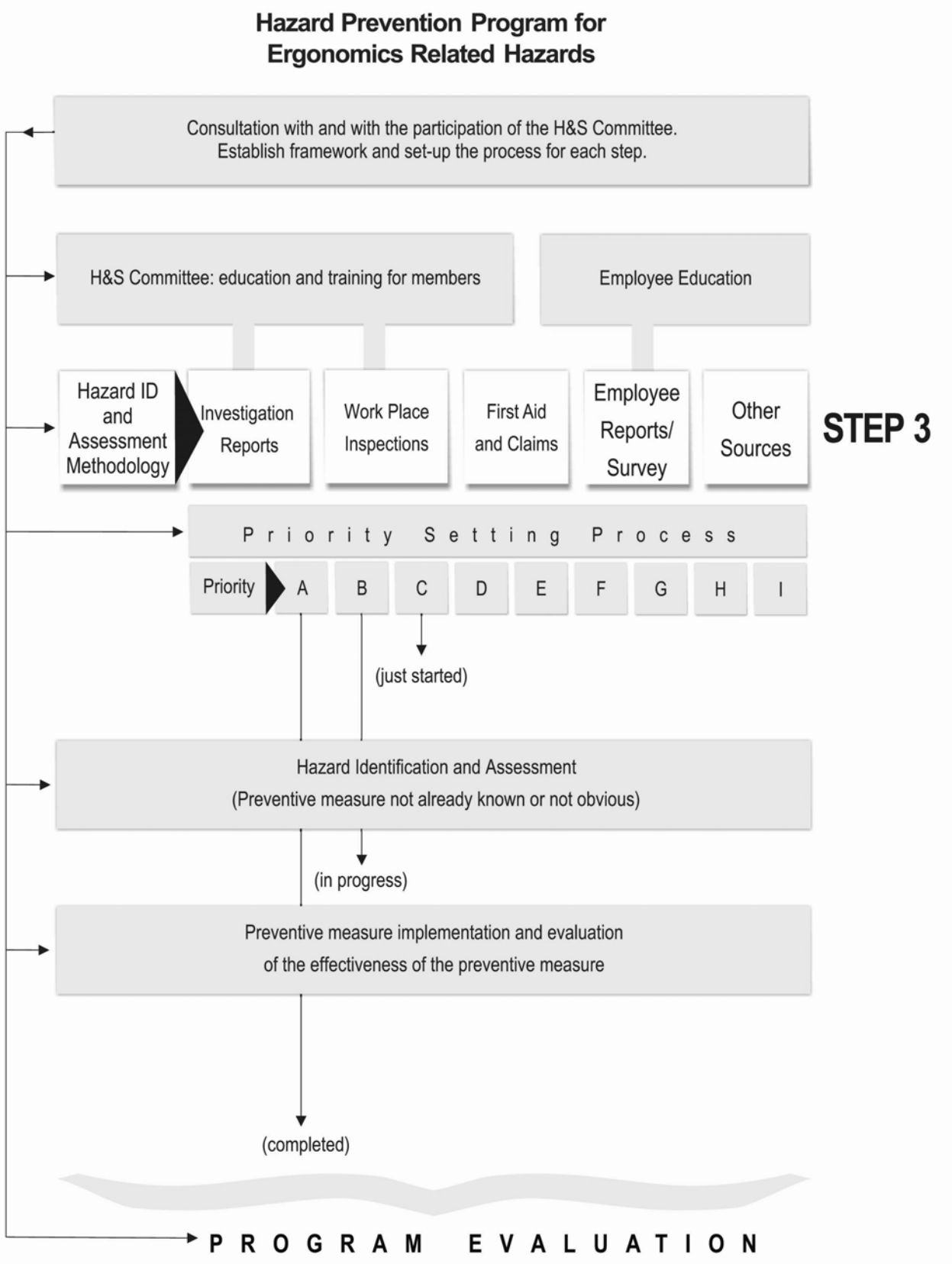
- *(a) at least every three years;*
- *(b) whenever there is a change in conditions in respect of the hazards; and*
- *(c) whenever new hazard information in respect of a hazard in the work place becomes available to the employer.*

Each time education is provided to an employee, the employee shall acknowledge in writing that they received it, and the employer shall acknowledge in writing that they provided it.

The employer shall keep, in paper or computerized form, records of the education provided to each employee, which shall be kept for a period of two years after the employee ceases to be exposed to a hazard.

A booklet entitled *Guide to Employee Education on Musculoskeletal Injuries* from the Labour Program is available to help employers teach employees about ergonomics, with a focus on MSI prevention. It outlines:

- The regulatory requirements specific to ergonomics-related hazards;
- The program approach to MSI prevention;
- The components of the MSI prevention program;
- Common ergonomics-related hazards in the work place; and
- The employees' duty to report ergonomics-related hazards.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Step 3: Methodology for Hazard Identification and Assessment

Section 19.3 of the Regulations

(1) *The employer shall develop a hazard identification and assessment methodology, including an identification and assessment methodology for ergonomics-related hazards, taking into account the following documents and information:*

- *(a) any hazardous occurrence investigation reports;*
- *(b) first aid records and minor injury records;*
- *(c) work place health protection programs;*
- *(d) any results of work place inspections;*
- *(e) any employee reports made under paragraph 126(1)(g) or (h) of the Act or under section 15.3;*
- *(f) any government or employer reports, studies and tests concerning the health and safety of employees;*
- *(g) any reports made under the Safety and Health Committees and Representatives Regulations;*
- *(h) the record of hazardous substances; and*
- *(i) any other relevant information, including ergonomics-related information.*

(2) *The hazard identification and assessment methodology shall include*

- *(a) the steps and time frame for identifying and assessing the hazards;*
- *(b) the keeping of a record of the hazards; and*
- *(c) a time frame for reviewing and, if necessary, revising the methodology.*

Key Documents and Information

Under the Regulations, the hazard identification and assessment methodology must take into account some key documents and information.

1. Hazardous occurrence investigation reports [section 19.3(1)*(a)*]:

For the information in these reports to be of value, the investigations must be conducted by people who know about ergonomics-related hazards and the problems and injuries that can result from exposure to these hazards.

The work place committee members who participate in these investigations must therefore receive the required education and training. For employers needing assistance, a *Guide for Investigating Musculoskeletal Injuries* is available from the Labour Program.

2. Results of work place inspections [section 19.3(1)*(d)*]

Again, for the information in inspection reports to be useful in this process, the inspections must be conducted by people who know how to identify and assess ergonomics-related hazards.

The work place committee members who participate in these inspections must therefore receive the required education and training. For employers needing guidance, a *General Guide for Identifying Ergonomics-Related Hazards* is available from the Labour Program.

Some ergonomics-related hazards are associated with lifting, reaching and/or repeating the same movements. These are also normal life activities that are considered healthy when performed in moderation.

To help in properly identifying the risks in the work place, the General Guide therefore suggests some basic assessment parameters, such as:

- Magnitude ("how much");
- Duration ("how long"); and
- Frequency ("how often").

In most cases, this level of identification and assessment is sufficient to arrive at preventive measures.

3. Employee reports [section 19.3(1)*(e)*]

Employees are required to tell the employer about anything in the work place that is likely to be hazardous to their own health or safety or to the health and safety of others.

Sometimes employees will themselves notice potential hazards in their environment or experience signs or symptoms of MSI. The education provided under Step 2 should further increase awareness in the work place and enable employees to identify potentially hazardous circumstances.

When trying to determine which jobs require preventive measures or detailed hazard assessment, the employer may wish to be proactive and ask employees for their input. To assist employers, a guide entitled *Employee Input on Potential Ergonomics-Related Hazards* is available from the Labour Program.

It is important for employees to be aware that their reports and input represent only one of several sources of information that will be considered in prioritizing tasks or jobs for hazard assessment and preventive measures.

Setting Priorities

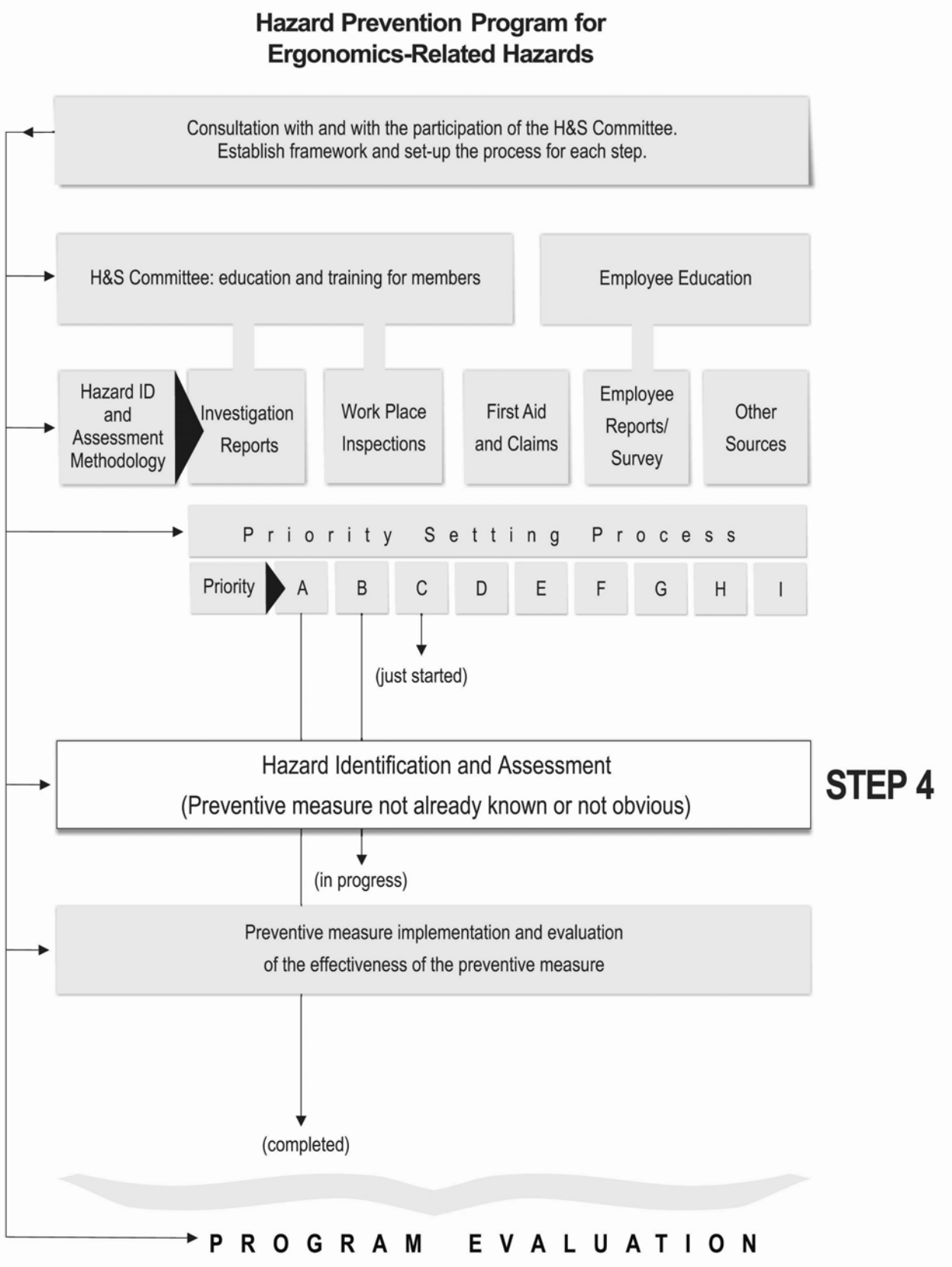
In most work places there are limited resources available, so it is helpful to have a way of identifying the tasks for which preventive measures are the most urgent. Situations where employees have already suffered MSIs or are reporting signs or symptoms of MSIs should be dealt with first. Each work place should establish a system for prioritizing tasks for preventive measures, based on the specific circumstances for the work site.

Once the order of priority has been established, the tasks should be assessed one by one so that preventive measures can be taken to reduce the risk to employees as much as is reasonably possible. Criteria for determining what is reasonably possible include:

- The number of employees affected;
- The availability of options and technology to reduce the hazard; and
- The severity of the hazard compared with the cost of the preventive measures.

Work places that have not previously had a MSI prevention program will find that there are many tasks with ergonomics-related hazards that must be looked at. The best approach is to work through them one at a time, in order of priority, at a pace that takes into account the severity of the hazards, the number of employees affected, and other health and safety issues that are being addressed at the same time in the work place.

Work places may wish to pick certain tasks on which quick action can be taken, to demonstrate their commitment to MSI prevention. This can be done where the preventive measures for a particular ergonomics-related hazard are obvious and have been proven by past experience in that work place or similar work places. In such cases, the process can be “fast-tracked” from Step 3 (Methodology) to Step 5 (Preventive Measures).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Step 4: Hazard Identification and Assessment

Section 19.4 of the Regulations

The employer shall identify and assess the hazards in the work place, including ergonomics-related hazards, in accordance with the methodology developed under section 19.3 taking into account

(a) the nature of the hazard;

(a.1) In the case of ergonomics-related hazards, all ergonomics-related factors such as

(i) the physical demands of the work activities, the work environment, the work procedures, the organization of the work and the circumstances in which the work activities are performed, and

(ii) the characteristics of materials, goods, persons, animals, things and work spaces and features of tools and equipment;

(b) the employees' level of exposure to the hazard;

(c) the frequency and duration of employees' exposure to the hazard;

(d) the effects, real or apprehended, of the exposure on the health and safety of employees;

(e) the preventive measures in place to address the hazard;

(f) any employee reports made under paragraph 126(1)(g) or (h) of the Act or under section 15.3; and

(g) any other relevant information.

Ergonomics-related Factors

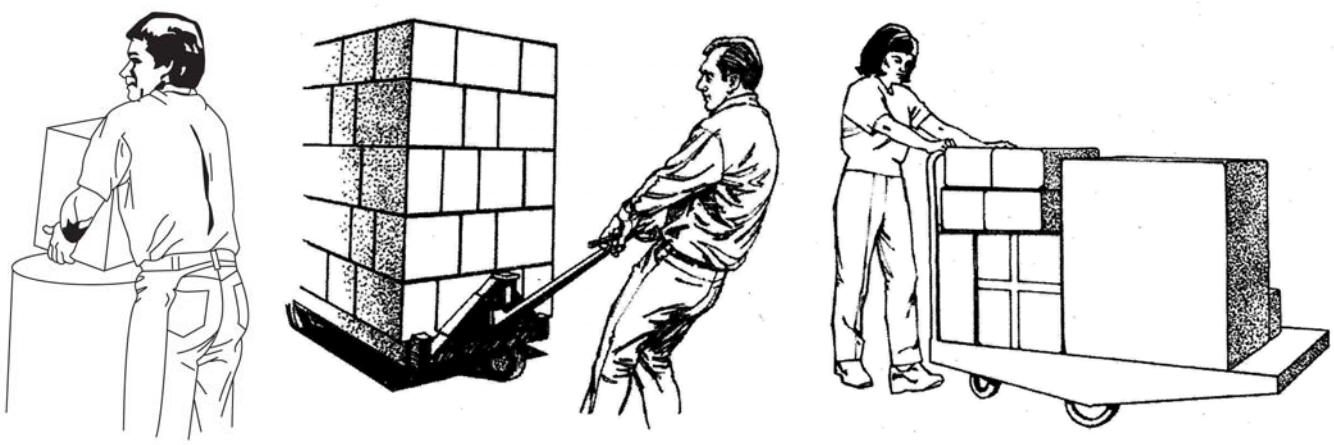
Many factors must be considered in hazard identification and assessment. The following are some ergonomics-related factors that can cause or contribute to MSIs. When an employee is exposed to two or more factors at the same time, the risk of injury is higher.

(a) Physical Demands of Work Activities

The primary factors that impose physical demands on an employee are force, fixed or awkward postures, contact stress, and repetition.

Force:

Force is the effort exerted by the employee to do the work. All work requires some level of force and in most cases the work can be done without harmful effects. However, if the force exerted (for example, when lifting an extremely heavy object) is more than the musculoskeletal system can handle it can lead to injury.



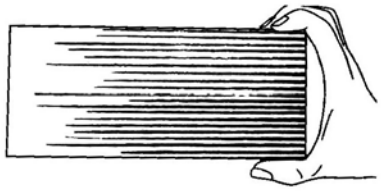
The risk of injury increases if a fairly high level of force is exerted repeatedly over a long period. There is even more risk of injury if the work is also done in an awkward posture (for example, lifting objects repeatedly with a twisting motion).

In addition to lifting, other common types of work associated with forceful exertion are pushing, pulling, gripping and carrying.

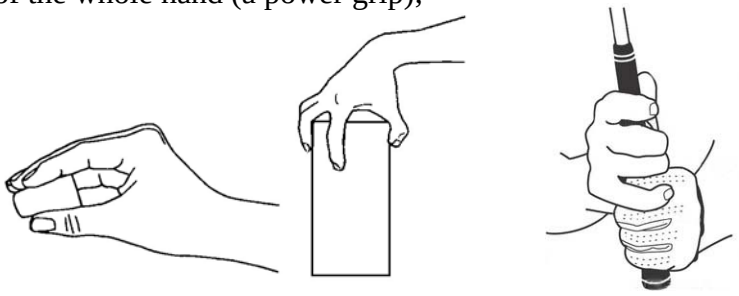
Holding things may be more difficult when the hands are cold or the object being manipulated is heavy. In addition, extra effort may be needed because of the nature of the task to be performed (for example, holding a knife to cut through a dense object).

Here are some examples of tasks requiring increased grip force:

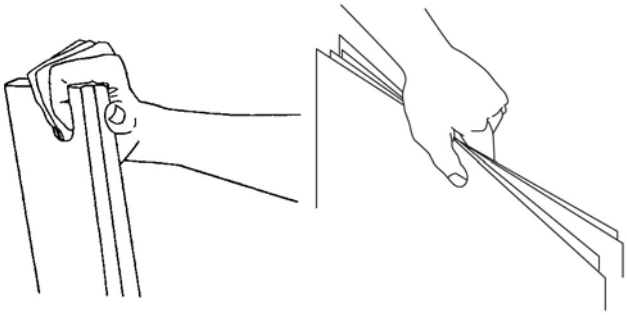
- Holding a slippery object ;
- Gripping a small tool or holding an object for precision work;
- Holding an object that is too large for a comfortable grip (i.e. fingers do not slightly overlap);



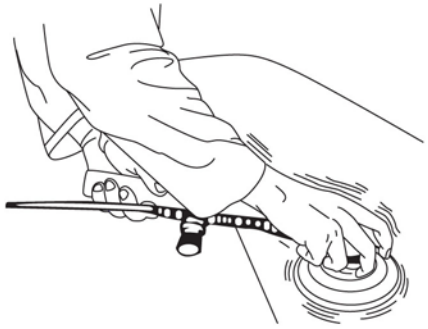
- Handling something using the fingers and the thumb (a pinch grip) instead of the whole hand (a power grip);



- Grasping an odd-shaped object that is difficult to hold;



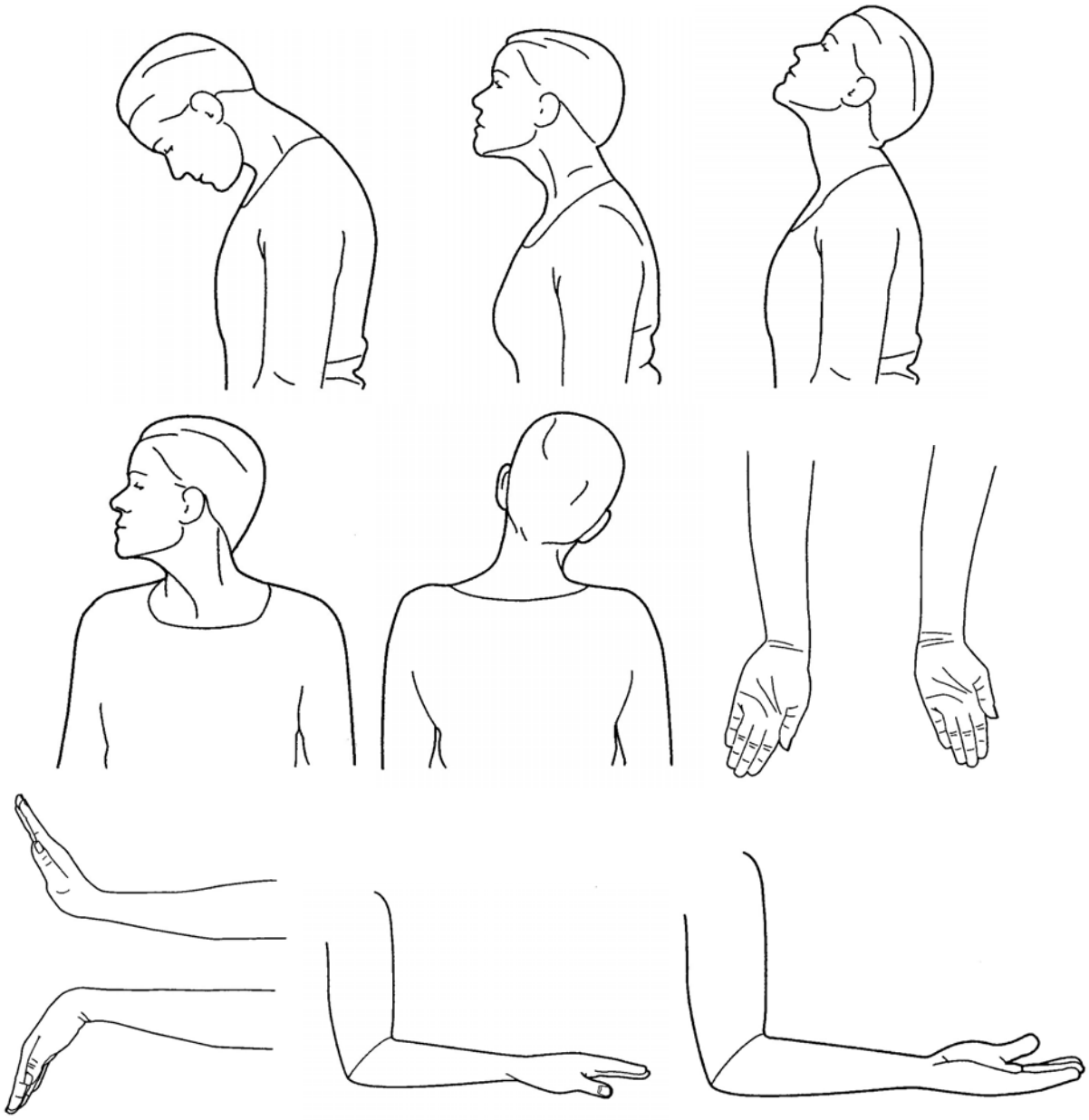
- Holding vibrating tools or objects.



Static (fixed) or awkward postures:

Posture refers to the position of a body part, in relation to nearby body parts, during an activity.

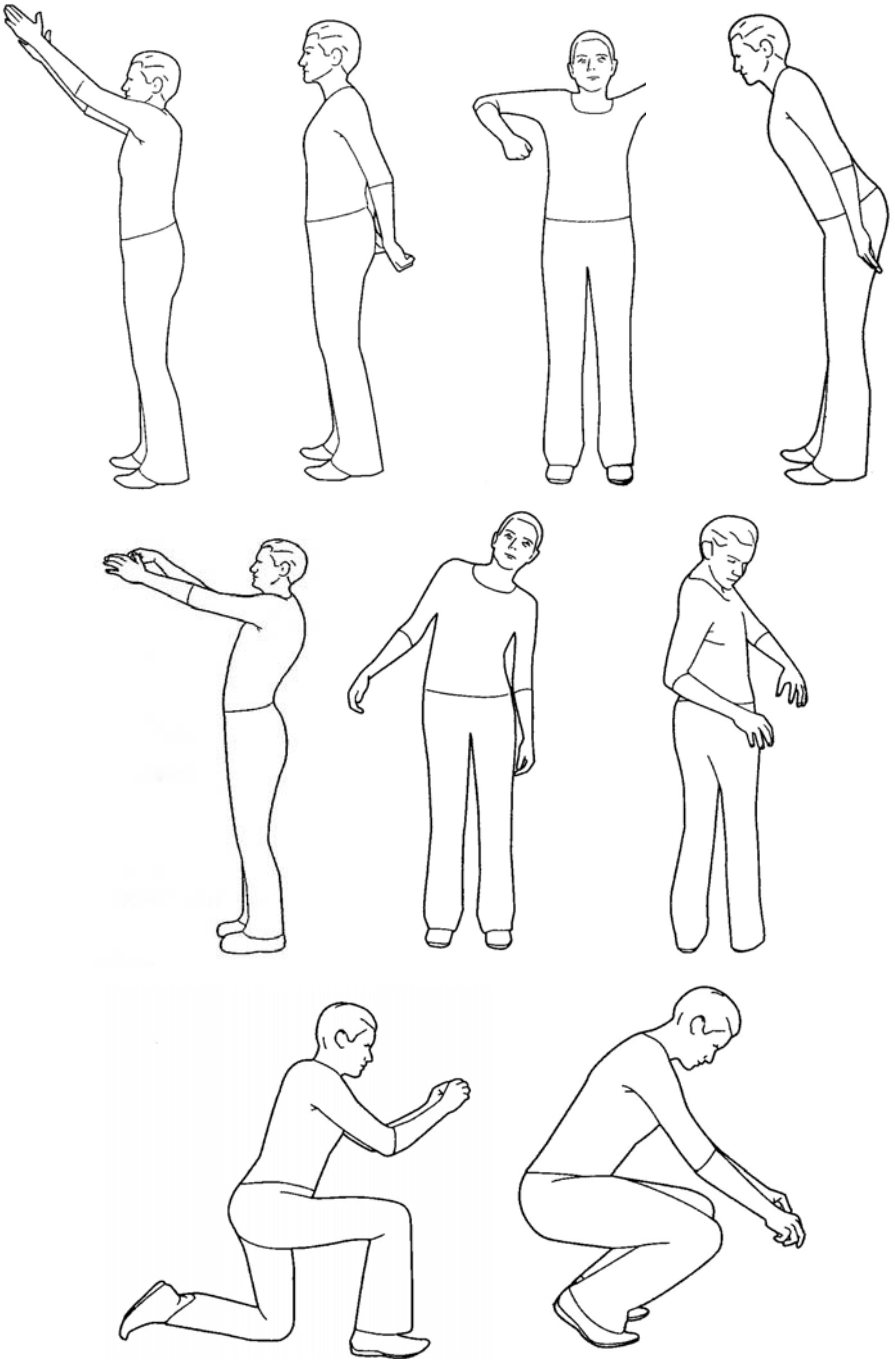
Joint position inside the comfortable range of motion is known as the neutral position. Awkward posture results when a joint in the body bends or twists excessively, outside the comfortable range shown in the diagram below.



Muscles, ligaments and tendons work harder to support the affected body part when in an awkward posture. The farther a joint moves away from the neutral position, the greater the effort required by the supporting soft tissues.

If a posture is held fixed, or static, for a long time, the muscles get tired because the lack of movement stops them from getting enough blood flow to keep them supplied with energy. This results in aches and pains.

Some common awkward postures are illustrated below:



Here are some examples of office tasks that can result in awkward postures:

Awkward shoulder posture

- Reaching overhead to get books or files on a high shelf;
- Reaching across the desk to use a telephone placed on the far side;

Awkward neck posture

- Twisting the neck to talk to someone seated to the side while using a keyboard directly in front;
- Bending the neck down to do detailed drawings on paper laid flat on the desk;
- Looking up frequently at a security screen high on the wall to monitor access points to the building, while working on a desktop computer;

Awkward back posture

- Leaning sideways to reach into a low drawer while sitting;
- Bending down and sorting documents on the floor.

Contact Stress:

Contact stress occurs when a hard or sharp object comes in contact with the skin. Soft tissues, including nerves and blood vessels, can be injured due to the pressure caused by contact stress.

Here are some things that can lead to contact stress:

Using body parts to strike hard surfaces

- Using the hand to knock metal parts into place while assembling machinery;
- Kicking the carpet-stretcher with the part of the leg right above the knee when installing carpet;

Kneeling on hard surfaces

- Kneeling on cement while setting floor tiles;
- Kneeling on a metal surface while stacking baggage inside the hold of a small aircraft;
- Kneeling on wood flooring while putting together a piece of furniture.

Having the sharp edge of a desk dig into the forearm or wrist while typing

Having ridges on a tool handle dig into the hand when the tool is held tightly

Repetition:

Using the same muscles, tendons and other soft tissues repeatedly with little chance for rest or recovery can lead to musculoskeletal injury when the muscles get tired. Repetition increases the risk of injury when other factors such as forceful exertion and awkward posture are also present.

Highly repetitious tasks can affect large muscles (for example, repeatedly lifting and stacking heavy objects) as well as small muscles (repeatedly operating a small syringe assembly).

Other factors that impose physical demands:

Hand-arm vibration (HAV)

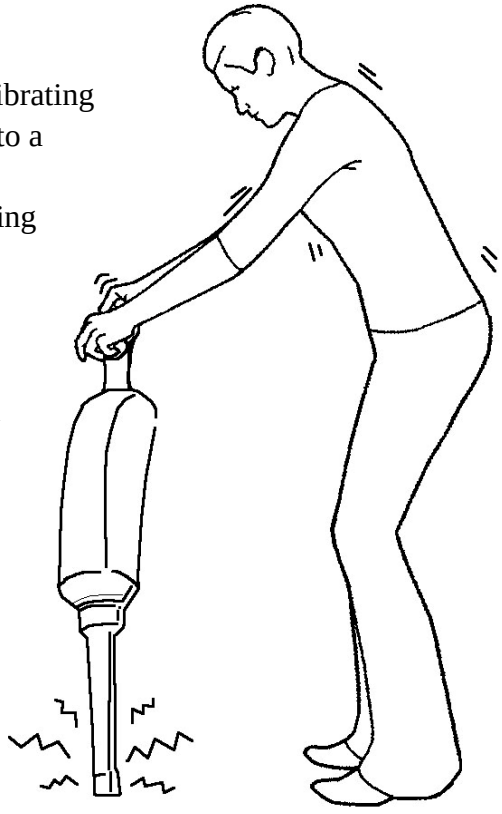
Small hand tools such as drills and sanders produce vibrations that are transferred to the hands of the employee holding them. This also happens with larger tools such as chain saws and pneumatic chippers and drills. Depending on the level and frequency of the vibration and the duration of exposure, the nerve and circulatory system in the hands and fingers may be harmed.

Exposing cold hands to vibration (for example, using a chain saw outside in the winter) raises the risk of hand-arm vibration syndrome.

Whole-body vibration

When a worker is sitting or standing on a vibrating surface, such as a surface directly attached to a large diesel engine, the vibration can be transmitted to his whole body. The same thing occurs when driving vehicles over rough surfaces.

Depending on the level, frequency and duration of exposure, whole-body vibration can contribute to back pain and performance problems.

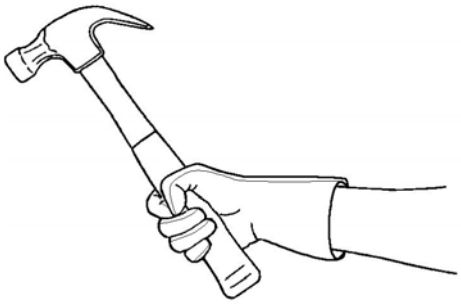


(b) Work Environment

The primary factors to be considered are cold temperatures and hot working conditions.

When exposed to cold, muscles and tendons become less flexible and do not work as efficiently. The blood circulation in the hands and arms is reduced and the worker will lose some of the feeling in his hands and fingers.

The worker will have to use more grip force to grasp objects. The increased effort can lead to greater strain on muscles and tendons.



Cold can be an issue when handling cold objects or if the air temperature is low.

Here are some examples where cold is a factor:

- Handling tools that are stored outside during the winter;
- Handling frozen or refrigerated food;
- Working outside during the winter; and
- Having cold air from the exhaust of a pneumatic drill blow over the hands and fingers.

Working in a hot or humid environment also imposes strain on the body. It increases the body temperature and causes dehydration, leading to muscle tiredness. People working in commercial kitchens or working outside during the summer are exposed to hot, humid work environments.

(c) Work Procedures and the Organization of Work

Work procedures and organization of work can minimize the harmful effects of the factors listed above. For example, physically demanding tasks can be spread among more employees through job rotation, thereby reducing the demands placed on any one person. Outside work during the hot summer months can be scheduled to begin early and finish early in the day, thereby reducing the heat load on employees.

Other possibilities are for employees to pace themselves when doing physically demanding tasks and for employers to phase out piecework.

When work procedures and organization of work do not take the work environment and the physical demands of the tasks into consideration, there is a higher risk of injury.

(d) Circumstances in which work activities are performed

When working in hazardous environments or responding to emergencies, workers must use various kinds of personal protective equipment. Waterproof coveralls that do not "breathe" can add to stress from heat. The filters in air purifying respirators increase the physical demands involved in breathing by cutting down on air flow. Using a self-contained breathing apparatus can add significant weight and bulk, making it harder to climb stairs and manoeuvre around objects.

(e) Characteristics and features that affect handling

Shape, bulkiness, surface texture and availability of handles are some of the characteristics that affect how easy it is to pick up and move materials, goods or things. For example, things that are wet and slippery can be hard to hold.

The characteristics of people and animals have a similar effect. Unfortunately, people and animals do not come with handles. They can be heavy and awkward to lift or move. In addition, both people and animals can be highly unpredictable. They may startle when touched or struggle to get away. This increases the risk to employees whose work involves manual handling of people or animals.

Characteristics of the work space, such as layout, can increase the physical demands of the work activities. For example, employees may have to reach to get materials they need, or they may use improper postures or body mechanics because they do not have enough space to move around.

Features of tools and equipment, such as weight, handle position and vibration, can increase the risk of MSIs.

Assessment Methods and Tools

The methodology used in Step 3 will identify the tasks with ergonomics-related hazards. These hazards may only be potential hazards, or they may already have caused an MSI, resulted in a minor injury or in first aid treatment, or been reported by an employee. In most cases, this level of information should be sufficient to proceed to preventive measures.

However, more complex assessment methods are sometimes required. This is true in cases where it is harder to assess the degree of hazard associated with a particular task or when comparing similar tasks.

> ***Example:***
>
> *An employee is assigned to transfer items from one conveyor to another. When is he most likely to injure himself?*
>
> - *If he spends 4 hours moving boxes weighing 20 kg twice a minute?*
> - *If he spends 4 hours moving boxes weighing 10 kg four times a minute?*
> - *If he spends 2 hours moving boxes weighing 20 kg four times a minute?*

Determining the relative hazard involved in performing the same quantity of work requires the use of fairly advanced or detailed assessment methods. So does evaluating the impact of exposure to a combination of factors, such as exerting force in an awkward posture repeatedly.

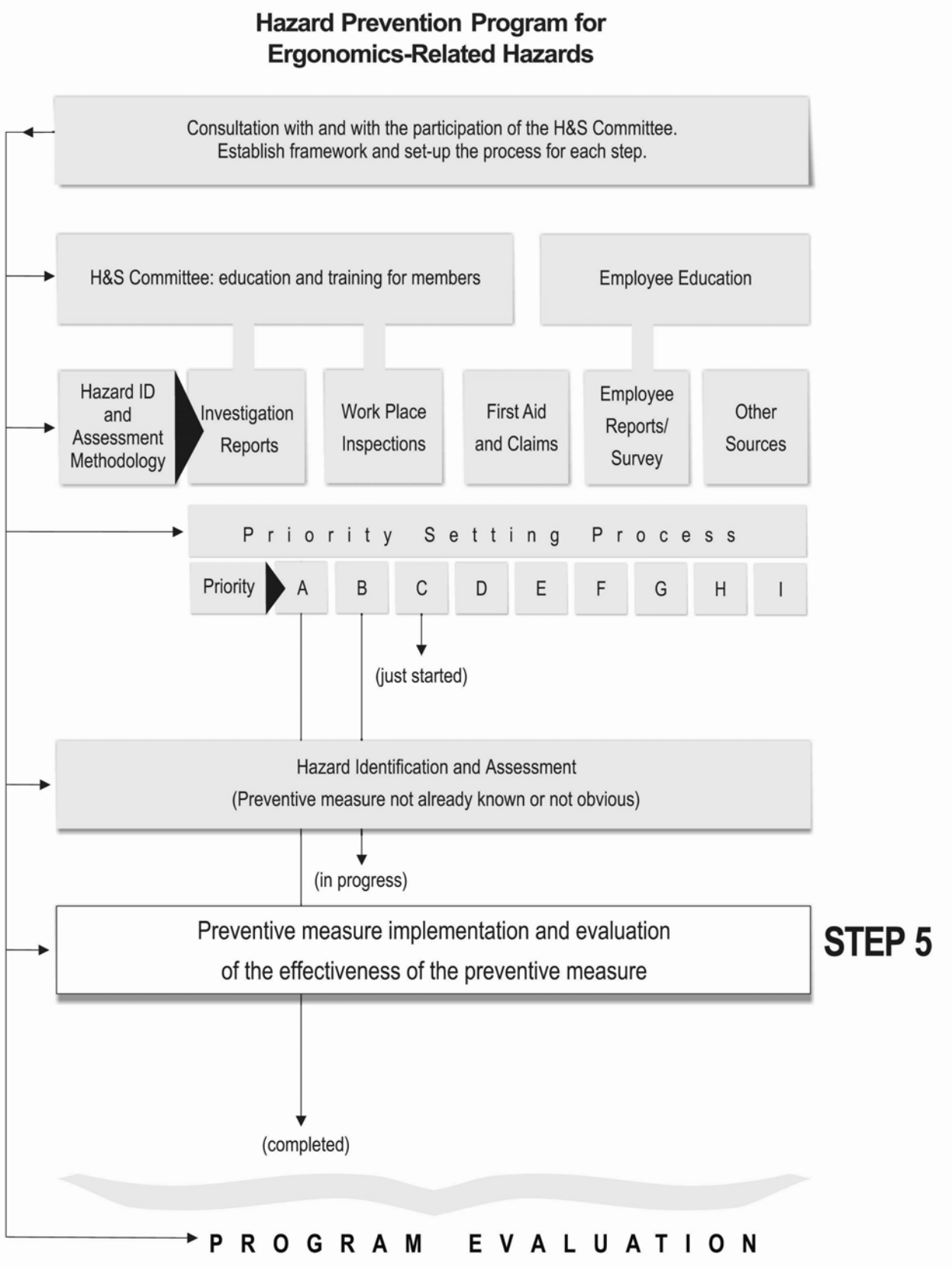
A list of in-depth risk assessment tools, along with brief descriptions, can be found in *MSD Prevention Tool Box – More on In-Depth Risk Assessment Methods*, which was developed by the Occupational Health and Safety Council of Ontario. It is important to note that to use these tools properly, people must have the necessary training.

It is the employer's responsibility to ensure that those assigned to identify and assess ergonomics-related hazards have the necessary education and training. They should be familiar with basic ergonomic principles and have experience applying them.

The ergonomics principles include:

- Adapting the work space and the work equipment to fit the operator and the kind of work being performed, to promote preferred body postures;
- Providing sufficient space for body movements;

- Providing variety in tasks and movements to avoid body tension caused by static postures;
- Designing work to allow machinery to do or assist with highly repetitive tasks, leaving more variable tasks to human operators;
- Placing controls within easy reach;
- Keeping loads close to the body and handling them with neutral postures;
- Keeping physical demands compatible with the physical capacities of the employee;
- Using mechanical assistance if the strength demanded exceeds the capacity of muscle groups.


Hazard Prevention Program for
Ergonomics-Related Hazards
Consultation with and with the participation of the H&S Committee.
Establish framework and set-up the process for each step.
H&S Committee: education and training for members
Employee Education
Hazard ID and Assessment Methodology
Investigation Reports
Work Place Inspections
First Aid and Claims
Employee Reports/ Survey
Other Sources
Priority Setting Process
Priority
A
B
C
D
E
F
G
H
I
(just started)
Hazard Identification and Assessment
(Preventive measure not already known or not obvious)
(in progress)
Preventive measure implementation and evaluation
of the effectiveness of the preventive measure
STEP 5
(completed)
PROGRAM EVALUATION

Step 5: Preventive Measures

Section 19.5 of the Regulations

The employer shall, in order to address identified and assessed hazards, including ergonomics-related hazards, take preventive measures to address the assessed hazard in the following order of priority:

- *(a) the elimination of the hazard, including by way of engineering controls which may involve mechanical aids, equipment design or redesign that take into account the physical attributes of the employee;*
- *(b) the reduction of the hazard, including isolating it;*
- *(c) the provision of personal protective equipment, clothing, devices or materials; and*
- *(d) administrative procedures, such as the management of hazard exposure and recovery periods and the management of work patterns and methods.*

As part of the preventive measures, the employer shall develop and implement a preventive maintenance program in order to avoid failures that could result in a hazard to employees.

The employer shall ensure that any preventive measure shall not in itself create a hazard and shall take into account the effects on the work place.

The preventive measures shall include steps to address

- *(a) newly identified hazards in an expeditious manner; and*
- *(b) ergonomics-related hazards that are identified when planning implementation of change to the work environment or to work duties, equipment, practices or processes.*

The employer shall ensure that any person assigned to implement ergonomics-related prevention measures has the necessary instruction and training.

The Regulations specify the order of priority for the types of preventive measures, or risk controls, that must be used to deal with ergonomics-related hazards.

(a) Elimination of the hazard:

It may be possible to eliminate the hazard by means of engineering controls. Common examples include:

- Having an adjustable work surface to eliminate awkward posture;
- Using a mechanical hoist to eliminate manual lifting;
- Using automation to eliminate repetitive manual tasks.

When preventive measures such as equipment modifications are implemented, the physical attributes of the employee(s) using that equipment must be taken into account. For example, modifying a work station to suit a very tall employee who is on the day shift may introduce new ergonomics-related hazards for a shorter employee on the night shift. Making sure that adjustability is built into the preventive measure can help overcome such challenges.

Use of mechanical equipment to transport materials rather than carry materials

(b) Reduction of the hazard

Ergonomics-related hazards can be reduced by making changes in the work place (for example, so the employee does not need to reach as far or bend down as often to get materials).

A hazard can be reduced by lowering the level (magnitude/amount), the duration of exposure or the frequency of exposure, or through any combination of these three methods.

(c) Personal protective equipment

Personal protective equipment includes things such as knee pads for kneeling on hard surfaces and vibration dampening gloves for using hand tools that vibrate.

There is a very limited range of personal equipment for protection against ergonomics-related hazards. This equipment is best used in combination with other preventive measures, such as administrative procedures.

For example, to reduce the risk to an employee assigned to set tiles on a large floor area, the employer may include different tasks in the employee's work day so he does not have to spend too long kneeling on a hard surface. However, during the time the employee does spend kneeling, using knee pads will improve his safety.

(d) Administrative procedures

A good example of an administrative control is having the employee monitor himself in order to change tasks when physical tiredness sets in while he is performing a physically demanding task.

Another example is having two or more employees alternate between a physically demanding task and less demanding tasks, to give them a chance to recover. Yet another possibility is for the employee to spread the physically demanding portion of the daily work over the entire shift rather than do it all at once.

The Regulations also say that when **planning changes** to the work environment or to work duties, equipment, practices or processes, the employer must be **proactive** in identifying and addressing potential ergonomics-related hazards.

As with hazard identification and assessment, the employer must ensure that any person assigned to implement ergonomics-related preventive measures has the necessary education and training.

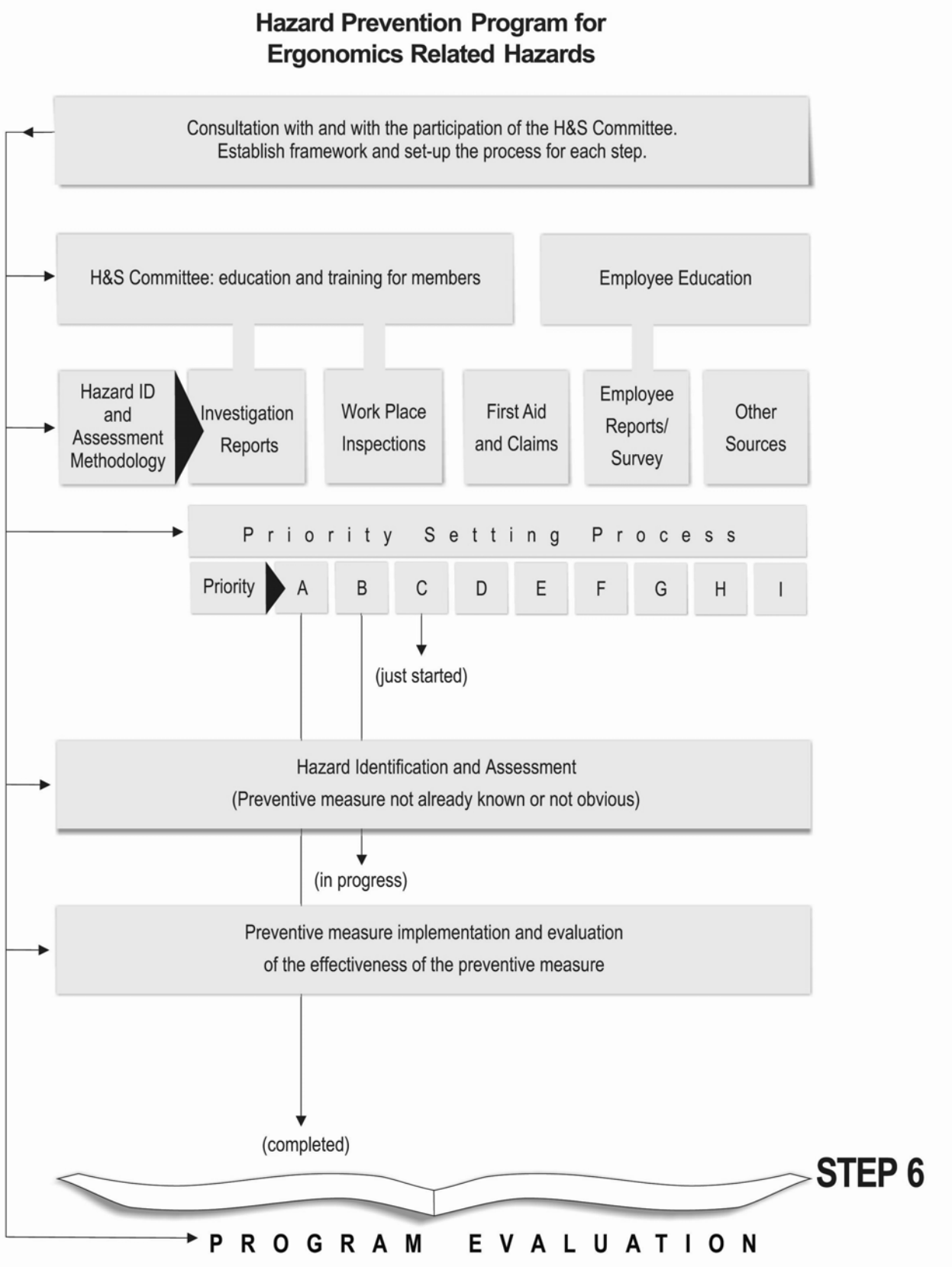
Appendix 1 of the Guide outlines some common preventive measures that have proven successful in reducing the risk to employees due to exposure to ergonomics-related hazards. It does not, however, include all possible options. The specific preventive measure or combination of measures that will be effective will depend on the specific circumstances at the work site.

The following aspects should be considered in selecting the most suitable option:

1. What experiences have others had with the solution? (Is there a proven or benchmark solution to the problem?)
2. Will any new hazards be created?
3. What are the costs and/or benefits of the preventive measure?
4. Are there non-monetary benefits to one option over another?
5. If there is disruption to work, productivity and/or quality of service during implementation, how will it be managed?
6. What training is required?
7. What feedback have employees provided? What option would they prefer?
8. What maintenance requirements will there be?
9. How will the success of the implementation evaluated?

It is **recommended** that a brief employee survey be conducted to collect and document employees' feedback on preventive measures implemented. This gives everyone who has used the control a chance to indicate their overall satisfaction with it, comment on its advantages and disadvantages, and make suggestions for improvement.

If a large number of employees are involved, the survey may be done using a sample of employees.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Hazard Identification and Assessment
(Preventive measure not already known or not obvious)
(in progress)
Preventive measure implementation and evaluation
of the effectiveness of the preventive measure
(completed)
STEP 6
PROGRAM EVALUATION

Step 6: Program Evaluation

Section 19.7 of the Regulations

(1) *The employer shall evaluate the effectiveness of the hazard prevention program, including its ergonomics-related components, and, if necessary, revise it*

(a) at least every three years;

(b) whenever there is a change in conditions in respect of the hazards; and

(c) whenever new hazard information in respect of a hazard in the work place becomes available to the employer.

(2) *The evaluation of the effectiveness of the prevention program shall be based on the following documents and information:*

(a) conditions related to the work place and the activities of the employees;

(b) any work place inspection reports;

(c) any hazardous occurrence investigation reports;

(d) any safety audits;

(e) first aid records and any injury statistics, including records and statistics relating to ergonomics-related first aid and injuries;

(f) any observations of the policy and work place committees, or the health and safety representative, on the effectiveness of the prevention program; and

(g) any other relevant information.

As with other hazards covered under the *Hazard Prevention Program Regulations*, the ergonomics-related components must be evaluated to see whether they are effective. First-aid records and statistics for ergonomics-related injuries are useful for this.

The effectiveness of the ergonomics-related components can be evaluated when evaluating the hazard prevention program as a whole, and the findings can be recorded as part of the HPP evaluation report.

For employers needing assistance, a *Checklist for the Evaluation of an Ergonomics-Related Hazard Prevention Program* is available from the Labour Program.

Reports and Records

Section 19.8 of the Regulations

(1) *If a program evaluation has been conducted under section 19.7, the employer shall prepare a program evaluation report and submit a copy of it to the Minister as part of the employer's annual hazardous occurrence report referred to in subsection 15.10(1).*

(2) *The employer shall keep readily available every program evaluation report for six years after the date of the report.*

Section 19.8 of the Regulations does not contain any specific requirements relating to ergonomics.

Appendix 1

Common Options for Preventive Measures

This appendix outlines some common preventive measures that have proven successful in reducing the risk to employees due to exposure to ergonomics-related hazards. It does not however include all possible options. The specific preventive measure or combination of measures that will be effective will depend on the specific circumstances at the site. Priority must be given to preventive measures that will eliminate the hazard to employees.

Ergonomics-related Factors	Common Options for Preventive Measures
Force: Gripping tools, equipment or objects	Eliminate the need to manually grip or handle tools, equipment or objects by using engineering controls such as clamps and automated tools. If that is not reasonably possible, consider options such as the following to minimize the risk to employees: • Use tools that allow employees to grip the tool using the whole hand (a power grip); • Choose tools that have triggers that can be operated using several fingers rather than one finger or a thumb; • Choose tools that can be used with the wrist straight; • Choose tools with features that reduce vibration; • Choose tools that are lighter and designed to reduce hand torque and kickback; • Ensure the tool is balanced and does not require extra muscular effort to hold it in position ; • Ensure the handle of a tool does not create pressure points in the palm of the hand; • Use tools with handles that fit the hand (for example, use a smooth hand grip rather than one with hard ridges that space the fingers); • Use rubber or sponge-type grips on tool handles; • Choose tools that can be safely used by either left handed or right handed employees; • Maintain tools regularly; • Inspect tools regularly; • Ensure worn or damaged tools are fixed or replaced; • Improve grip while handling slippery objects by using friction-enhanced, well-fitting gloves; • Reduce the total time the employee spends manually gripping objects; • Rather than have the employee spend one long period continuously gripping a tool, break the time into shorter periods.

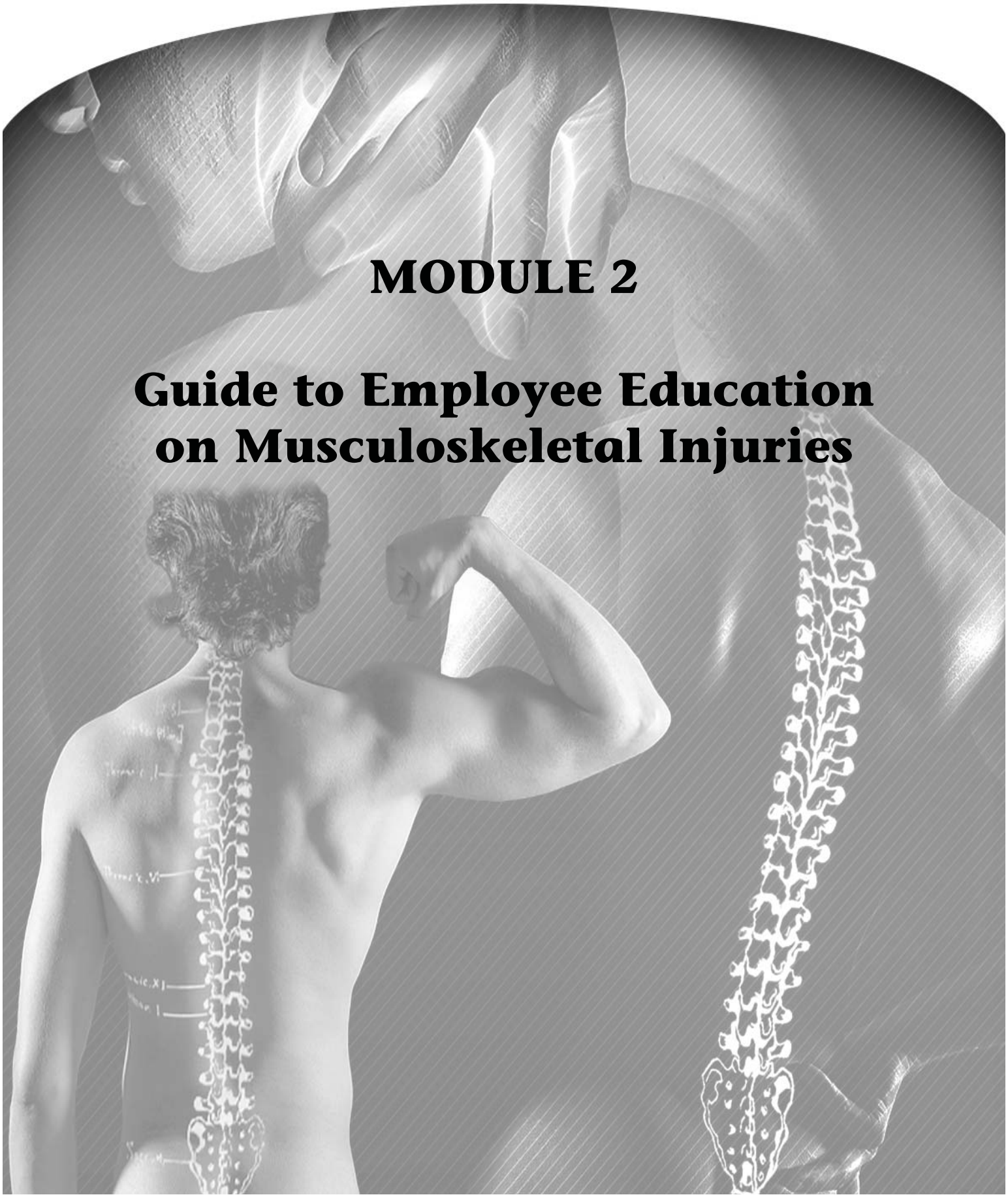
Ergonomics-related Factors	Common Options for Preventive Measures
Force: Lifting, lowering or carrying objects	Eliminate the need to manually lift, lower or carry objects by using mechanical means such as cranes, hoists, pallet jacks, conveyers and carts. If this is not reasonably possible, consider options such as the following to minimize the risk to employees: • Minimize the distance between the load and the employee by removing any obstacles between them or using a turntable; • Use height-adjustable pallet trucks/scissor lifts to keep loads off the floor and above knee height; • Organize the starting and ending location of the lifts to limit the overall vertical distance a load has to be lifted; • Avoid lifts below knuckle level and above shoulder level (e.g. make sure shelf heights are not too high or too low); • Tell employees not to lift loads heavier than 4 kg when seated; have them stand up and use larger, stronger muscles; • Improve the grip/handles on objects being lifted; • Split the overall weight of a load into smaller loads; • Avoid handling uneven, unbalanced loads; • Make sure the work space allows enough room for the employee to move about easily, without stooping or twisting; • Use gravity as an assist whenever possible (lower rather than lift); • Minimize the distance loads must be carried; • Use carts, motorized buggies, conveyors or gravity-fed conveyors to transport loads rather than carrying them; • Provide tools/devices to help with carrying tasks (e.g. carrying handles, extension handles); • Train workers to assess all material handling tasks and to ensure that the path is clear of obstructions/trip hazards when carrying items; • Do not carry objects up and down stairs if two hands are needed to hold objects; keep one hand free to hold the hand rail; • Improve housekeeping to prevent trips and falls; • Use shoulder pads when carrying loads on the shoulders; • Organize the work so that physically demanding tasks are not performed continually for long periods; use job enrichment practices and pause periods to permit muscles to recover from applying force for long periods.

Ergonomics-related Factors	Common Options for Preventive Measures
Force: Pushing and pulling	Eliminate the need to manually push or pull objects by using mechanical devices such as conveyors, cranes or gravity-fed systems. If that is not reasonably possible, consider options such as the following to minimize the risk to employees: • Use carts that have vertical or height adjustable handles to enable different sized workers to position their hands between waist and shoulder height; • Use larger wheels on carts and bins as this reduces push and pull forces and makes it easier to roll over cracks or holes in the floor; • Ensure that wheels/casters are suitable for the load being transported and are compatible with the type of flooring; • Determine the most suitable swivel arrangement of casters – 2 or 4, front or back; • Ensure there is enough space so the worker does not have to use awkward postures to move the cart; • Design/change the layout of the work area to eliminate the need to push wheeled objects up slopes or over uneven surfaces; • Minimize changes in floor level in areas such as entrances to elevators; • Ensure the flooring is smooth but not slippery, and in good condition; • Ensure the floor is clean (no debris or clutter) and not covered with thick, plush or shag carpet; • Ensure workers can see over the top of the cart; • Push rather than pull carts; • Ensure unrestricted work space so the employee can comfortably get the load moving and keep it moving; • Maintain carts, especially wheels and wheel bearings; • Provide brakes on carts where practical; • Organize the work so that physically demanding tasks are not performed continually for long periods; use job enrichment practices and pause periods to permit muscles to recover from applying force for long periods.

Ergonomics-related Factors	Common Options for Preventive Measures
Work posture: Fixed or awkward postures	Eliminate awkward postures through preventive measures such as having adjustable work heights, minimizing reach distances, and using proper tools, turntables, conveyors, tilted surfaces or spring-loaded surfaces. Note that even when the employee is able to work comfortably, periodic movement or changes in posture are required. If elimination of awkward posture is not reasonably possible, consider options such as the following to minimize the risk to employees: • Minimize awkward posture of the neck: o Keep the monitor or objects that need to be viewed at a height that will not require tilting the head to look up or down; o Avoid twisting the neck (e.g., using a keyboard in front and looking at a person seated to the side); o Avoid bending the neck (e.g., to hold the telephone receiver); • Minimize awkward posture of the shoulder: o Reduce the need to reach forward or sideways by moving objects closer and by adjusting the work height (e.g., tilted position); o Minimize reaching behind by moving objects to the front; o Minimize reaching across the body by moving closer to the objects or by transferring objects from one hand to the other; • Minimize forearm rotation by using power tools or mechanical turners; • Minimize awkward posture of the wrist by using tools with appropriate handles (e.g., angled handles, drop down tools); • Minimize awkward posture of the body: o Reduce forward bending by increasing the work height or moving objects closer (i.e., improved work place layout); o Minimize side bending by reducing the reach distance or moving objects to the front of the employee; o Minimize twisting by improving the layout of the work area; • Minimize squatting or kneeling by raising the task; • Incorporate adjustability into tools and equipment: o Have work surfaces whose height can be adjusted to suit the type of work being done (i.e., precision, light or heavy work); o Use a tilted surface for drafting; o Use tilted bins and bins with false bottoms for easier access inside; o Have height adjustable chairs; • Minimize static or fixed postures: o Include a greater variety of tasks in the work; o Encourage employees to move/walk around periodically; o Use sit/stand stools and footrests at standing workstations; o Use anti-fatigue matting for standing work areas with hard floor surfaces.

Ergonomics-related Factors	Common Options for Preventive Measures
Contact stress	Eliminate or minimize exposure to contact stress: • Change or modify equipment (e.g., use a long-handled screwdriver to prevent the butt from digging into the palm); • Change or modify the work area to prevent sharp edges from digging into skin (e.g., pad sharp or metal edges); • Use personal protective equipment (e.g., use knee pads while kneeling; use padded gloves when lifting heavy objects by means of narrow plastic strapping); • Improve or change work practices to reduce resting or leaning against sharp edges; • Avoid using body parts (e.g., palm or knee) as a hammer.
Repetition	Eliminate highly repetitious tasks by using preventive measures such as automation or mechanization (e.g., power tools). If that is not reasonably possible, consider options such as the following to minimize the risk to employees: • Reduce the duration of exposure to repetition (e.g., through well-designed job rotation or job enrichment); • Add different tasks to the job to increase the variety of activities; • Include flexibility in the job so the worker can control the pace of work; • Use a work schedule that allows for frequent changes of activity; • Encourage employees to take micro-breaks; • Use good work techniques and avoid unnecessary repetition.
Work environment: Cold temperatures	• Ensure employees wear high-friction, well-fitting gloves; • Ensure employees wear clothing that keeps them warm without adding a lot of bulk; • Ensure hand tools are stored in a warm place prior to use; • Provide alternating periods of cold and warm work (employee rotation) and allow employees to take breaks in warm areas; • Avoid having employees use tools that discharge cold gases over their hands; • Provide local source heating (portable heaters) for employees; • Educate employees about the harmful effects of cold and its influence on musculoskeletal injuries; • Encourage employees to drink enough fluids.
Work environment: Heat and humidity	• Provide alternating periods of cool/shaded and warm work (employee rotation) and allow employees to take rest breaks in cool areas; • Provide local source cooling (portable spot chillers) for employees;

Ergonomics-related Factors	Common Options for Preventive Measures
	• Educate employees about the harmful effects of heat and its influence on musculoskeletal injuries; • Encourage employees to drink enough fluids.
Work organization and work methods	• Ensure that repetitive or demanding tasks incorporate opportunities for rest or recovery (e.g., allow brief pauses to relax muscles; change work tasks; change postures or techniques); • Incorporate task variability so the employee does not have to perform similar repetitious tasks throughout the shift; provide the employee with the opportunity to vary work tasks by rotating jobs or increasing the scope of the job; • Ensure that work demands and work pace are appropriate; • Evaluate jobs to determine whether work methods are compatible with employee capabilities; • Analyze the differences in work methods between individuals to find the best work methods; • Ensure that the official work method is the best work method and corresponds to what employees are actually doing.



MODULE 2

Guide to Employee Education on Musculoskeletal Injuries

Guide to Employee Education on Musculoskeletal Injuries

Many hazards in the work place can lead to employee injuries. Part XIX of the *Canada Occupational Health and Safety Regulations* outlines a hazard prevention program for employers under federal jurisdiction. In December 2007, Part XIX (commonly known as the *Hazard Prevention Program Regulations*) was amended to include ergonomics-related hazards, which can cause musculoskeletal injuries.

> *A **musculoskeletal injury (MSI)** is an injury or disorder of the musculoskeletal system. The **musculoskeletal system** includes muscles, tendons, blood vessels, ligaments, nerves, joints, spinal discs and related soft tissue.*

Other common terms used for musculoskeletal injuries are:

- Musculoskeletal disorder (MSD);
- Cumulative trauma disorder (CTD);
- Repetitive strain injury (RSI);
- Occupational overuse syndrome;
- Sprain and strain.

This guide *does not cover* musculoskeletal injuries that result directly from:

- Falling, slipping or tripping;
- Being struck by an object or knocked against something;
- Being caught in or on something; or
- Being in a vehicle accident.

The hazards that can cause MSIs are usually associated with the physical demands of work activities. For example, employees may injure themselves by:

- Lifting or pushing loads that are too heavy;
- Reaching or bending in an awkward posture;
- Holding the same position for a long time; or
- Repeating the same movements over and over with little chance for rest or recovery.

Through ergonomics, the risk of injury posed by such hazards can be eliminated or reduced.

Ergonomics *is the scientific study of the relationship between people and their working environment with a view to improving safety, ease of action and efficiency.*

Purpose of the Guide to Employee Education on Musculoskeletal Injuries

As part of the hazard prevention program (HPP) employers are required to provide health and safety education to their employees. Under the amendments to the Regulations, this includes teaching them about ergonomics. The purpose of this Guide is to assist employers with employee education. The Guide outlines:

- The regulatory requirements specific to ergonomics-related hazards;
- The program approach to MSI prevention;
- The components of the MSI prevention program;
- Common ergonomics-related hazards in the work place; and
- The employees' duty to report ergonomics-related hazards.

The Guide highlights only those aspects of the hazard prevention program that are specific to ergonomics-related hazards. It does not cover aspects (such as periodic review of the employee education program) which apply to all hazards.

MSI Prevention and Employee Education

In order to prevent musculoskeletal injuries, employers must have a hazard prevention program that covers ergonomics-related hazards. This HPP is to be developed in consultation with and with the participation of the policy committee (or the work place committee or the health and safety representative).

Under the Regulations, a HPP must include the following components:

- Implementation plan;
- Hazard identification and assessment methodology;
- Hazard identification and assessment;
- Preventive measures;
- Employee education; and
- Program evaluation

Employee education is thus one of the components. Employees need to know about all the parts of the program and how it will be implemented.

The *Guide on the Prevention of Musculoskeletal Injuries (MSIs)* outlines the general process for implementing an MSI prevention program as part of the overall HPP. However, it is up to the employer, in cooperation with the policy committee, to select and implement the MSI prevention program best suited to that particular work place.

Employees must be educated on each component of the employer's chosen program. When it comes to MSI prevention, this includes telling them about:

- Ergonomics-related hazards in the work place;
- Their duty to report things that are likely to be a risk to themselves or others;
- The process for reporting ergonomics-related accidents or other occurrences in the work place.

Employee Education – Implementation Plan

Employees must be educated on how the HPP is to be implemented to deal with ergonomics-related hazards. This includes the process and the time frames for implementing each part of the program.

Employee Education – Hazard Identification and Assessment Methodology

An important source of information for this part of the HPP is employee reports.

Employees have a duty to report:

- Any thing or circumstance in the work place that is likely to be hazardous to the health or safety of themselves, other employees or authorized visitors to the work place; and
- Accidents or other occurrences arising in the course of or in connection with their work that has caused injury to them or to anyone else.

To fulfill this duty, employees need to understand the signs and symptoms of MSIs, as well as the factors that can pose ergonomics-related hazards.

Signs and Symptoms of MSIs

A **sign** is something that can be observed, such as redness, swelling or difficulty moving a particular body part. A **symptom** may be felt but cannot be observed. Examples include pain, numbness or a tingling sensation. It is important to be able to recognize the early signs and symptoms of MSIs. This will help in getting treatment as soon as possible, before the condition worsens. Signs and symptoms may appear gradually over a period of time, or may appear suddenly, as a result of a specific incident.

Ergonomics-related factors

A number of ergonomics-related factors can pose a hazard to employees. Some of the common factors are force, fixed or awkward postures, repetition, contact stress, vibration and extremes of temperature. There may be other site-specific ergonomics-related factors that must be evaluated in assessing the risk to employees.

Force:

Force is the effort exerted by the employee to do the work. All work requires some level of force and in most cases the work can be done without harmful effects. However, if the force exerted (for example, when lifting an extremely heavy object) is more than the musculoskeletal system can handle it can lead to injury.

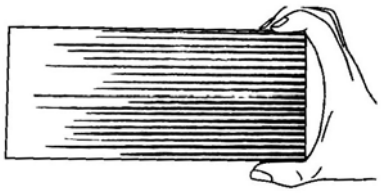
The risk of injury increases if a fairly high level of force is exerted repeatedly over a long period. There is even more risk of injury if the work is also done in an awkward posture (for example, lifting objects repeatedly with a twisting motion).

In addition to lifting, other common types of work associated with forceful exertion are pushing, pulling and gripping.

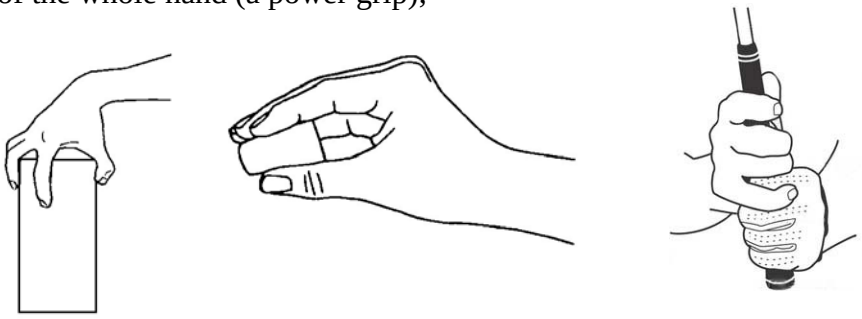
Holding things may be more difficult when the hands are cold or the object being manipulated is heavy. In addition, extra effort may be needed because of the nature of the task to be performed (for example, holding a knife to cut through a dense object).

Here are some examples of tasks requiring increased grip force:

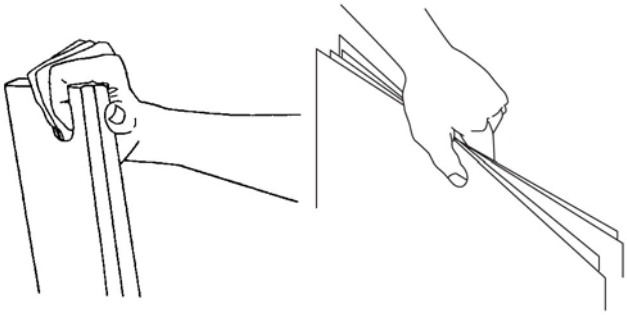
- Holding a slippery object;
- Gripping a small tool or holding an object for precision work;
- Holding an object that is too large for a comfortable grip (i.e. fingers do not slightly overlap);



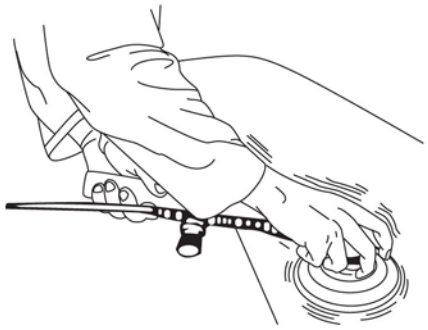
- Handling something using the fingers and the thumb (a pinch grip) instead of the whole hand (a power grip);



- Grasping an odd-shaped object that is difficult to hold;



- Holding vibrating tools or objects.



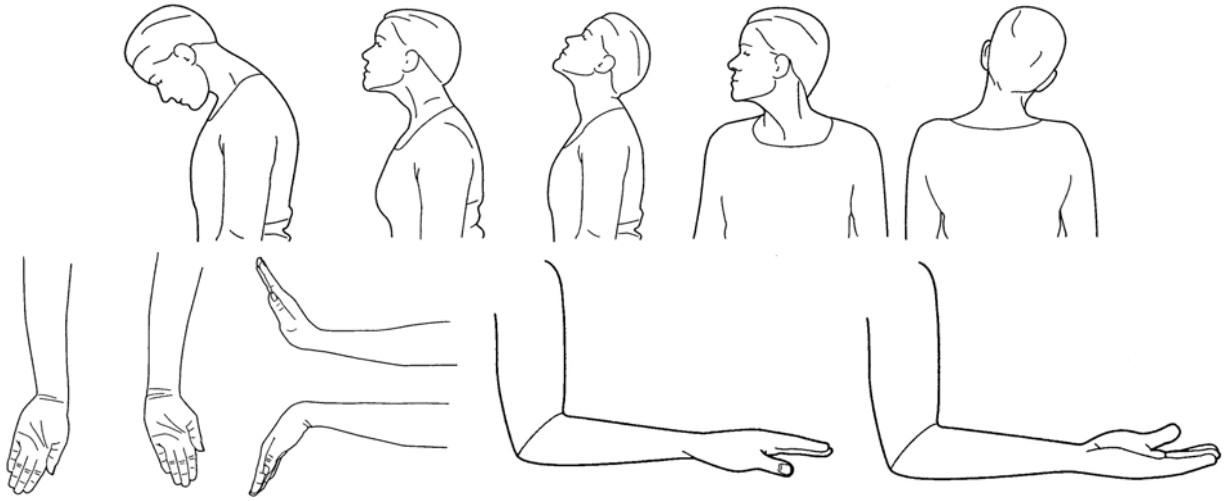
Static (fixed) or awkward postures:

Posture refers to the position of a body part, in relation to nearby body parts, during an activity. Awkward posture results when a joint in the body bends or twists excessively, outside the comfortable range shown in the diagram below.

Joint position inside the comfortable range of motion is known as the neutral position. The farther a joint moves away from the neutral position, the greater the effort required by the supporting soft tissues.

If a posture is held fixed, or static, for a long time, the muscles get tired because the lack of movement stops them from getting enough blood flow to keep them supplied with energy. This results in aches and pains.

Some common awkward postures are illustrated below:



Here are some examples of office tasks that can result in awkward postures:

Awkward shoulder posture

- Reaching overhead to get books or files on a high shelf;
- Reaching across the desk to use a telephone placed on the far side.

Awkward neck posture

- Twisting the neck to talk to someone seated to the side while using a keyboard directly in front;
- Bending the neck down to do detailed drawings on paper laid flat on the desk;
- Looking up frequently at a security screen high on the wall to monitor access points to the building, while working on a desktop computer.

Awkward back posture

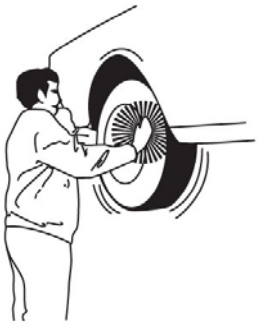
- Leaning sideways to reach into a low drawer while sitting;
- Bending down and sorting documents on the floor.

Contact stress:

Contact stress occurs when a hard or sharp object comes in contact with the skin. Here are some things that can lead to contact stress:

Using body parts to strike hard surfaces

- Using the hand to knock metal parts into place while assembling machinery;
- Kicking the carpet-stretcher with the part of the leg right above the knee when installing carpet.

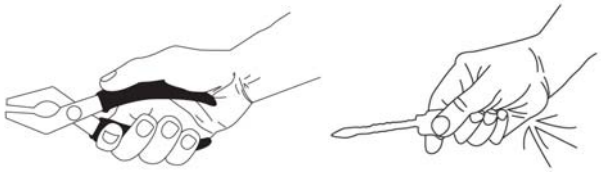


Kneeling on hard surfaces

- Kneeling on cement while setting floor tiles;
- Kneeling on a metal surface while stacking baggage inside the hold of a small aircraft;
- Kneeling on wood flooring while putting together a piece of furniture.

Having the sharp edge of a desk dig into the forearm or wrist while typing

Having ridges on a tool handle dig into the hand when the tool is held tightly

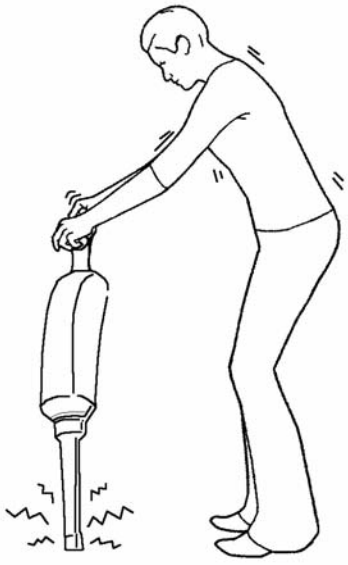


Repetition:

Using the same muscles, tendons and other soft tissues repeatedly with little chance for rest or recovery can lead to musculoskeletal injury when the muscles get tired. Repetition increases the risk of injury when other factors such as forceful exertion and awkward posture are also present.

Hand-arm vibration (HAV):

Small hand tools such as drills and sanders produce vibrations that are transferred to the hands of the employee holding them. This also happens with larger tools such as chain saws and pneumatic chippers and drills. Exposing cold hands to vibration (for example, using a chain saw outside in the winter) raises the risk of hand-arm vibration syndrome.



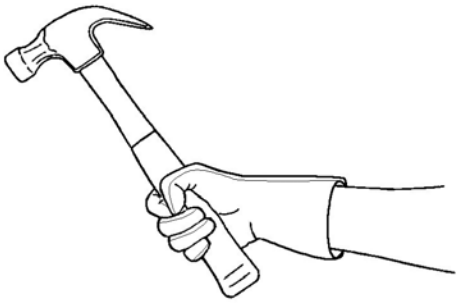
Whole-body vibration:

When a worker is sitting or standing on a vibrating surface, such as a surface directly attached to a large diesel engine, the vibration can be transmitted to his whole body. The same thing occurs when driving vehicles over rough surfaces.

Depending on the level, frequency and duration of exposure, whole-body vibration can contribute to back pain and performance problems.

Extremes of temperature:

When exposed to cold, muscles and tendons become less flexible and do not work as efficiently. The blood circulation in the hands and arms is reduced and the worker will lose some of the feeling in his hands and fingers. As a result, the worker will have to use more grip force to grasp objects.



Here are some examples where cold is a factor:

- Handling tools that are stored outside during the winter;
- Handling frozen or refrigerated food;
- Working outside during the winter;
- Having cold air from the exhaust of a pneumatic drill blow over the hands and fingers.

Working in a hot or humid environment also imposes strain on the body. It increases the body temperature and causes dehydration, leading to muscle tiredness. People working in commercial kitchens or working outside during the summer are exposed to hot, humid work environments.

Employee Education – Hazard Identification and Assessment

Hazard identification and assessment involves looking at ergonomics-related factors and assessing the level, duration and frequency of exposure to determine how much of a hazard they represent.

The **level** is the quantity or magnitude of the ergonomics-related factor:

- How much force is being applied by the employee?
- How severe is the awkward posture?
- How hard is the strapping digging into the skin when lifting the box?
- How fast is the employee repeating the same movements?

The **duration** is the length of time the employee is exposed to the factor:

- How long is the employee exerting the force?
- How long is the employee in the awkward posture?
- How long is the employee carrying the heavy box by its strapping?
- How long does the employee perform the repetitious task?

The **frequency** refers to how often the employee is exposed to that factor:

- How often is the employee exerting the force?
- How often is the employee in the awkward posture?
- How often is the employee carrying the heavy box by its strapping?
- How often does the employee perform the repetitious task?

Some of the methods and tools for hazard assessment are complex, and the people using them must have the necessary training.

Employee Education – Preventive Measures

The Regulations specify the order of priority for the types of preventive measures, or risk controls, that must be used to deal with ergonomics-related hazards.

(a) Elimination of the hazard:

It may be possible to eliminate the hazard by means of engineering controls. Common examples include:

- Having an adjustable work surface to eliminate awkward posture;
- Using a mechanical hoist to eliminate manual lifting;
- Using automation to eliminate repetitive manual tasks.

When preventive measures such as equipment modifications are implemented, the physical attributes of the employee(s) using that equipment must be taken into account. For example, modifying a work station to suit a very tall employee who is on the day shift may introduce new ergonomics-related hazards for a shorter employee on the night shift. Making sure that adjustability is built into the preventive measure can help overcome such challenges.

Use of mechanical equipment to transport materials rather than carry materials

(b) Reduction of the hazard

Ergonomics-related hazards can be reduced by making changes in the work place (for example, so the employee does not need to reach as far or bend down as often to get materials).

A hazard can be reduced by lowering the level (magnitude/quantity), the duration of exposure or the frequency of exposure, or through any combination of these three methods.

(c) Personal protective equipment

Personal protective equipment includes things such as knee pads for kneeling on hard surfaces and vibration dampening gloves for using hand tools that vibrate.

There is a very limited range of personal equipment for protection against ergonomics-related hazards. This equipment is best used in combination with other preventive measures, such as administrative procedures.

For example, to reduce the risk to an employee assigned to set tiles on a large floor area, the employer may include different tasks in the employee's work day so he does not have to spend too long kneeling on a hard surface. However, during the time the employee does spend kneeling, using knee pads will improve his safety.

(d) Administrative procedures

A good example of an administrative control is having the employee monitor himself in order to change tasks when physical tiredness sets in while he is performing a physically demanding task.

Another example is having two or more employees alternate between a physically demanding task and less demanding tasks, to give them a chance to recover. Yet another possibility is for the employee to spread the physically demanding portion of the daily work over the entire shift rather than do it all at once.

The Regulations also say that when **planning changes** to the work environment or to work duties, equipment, practices or processes, the employer must be **proactive** in identifying and addressing potential ergonomics-related hazards.

As with hazard identification and assessment, the employer must ensure that anyone assigned to implement ergonomics-related preventive measures has the necessary training.

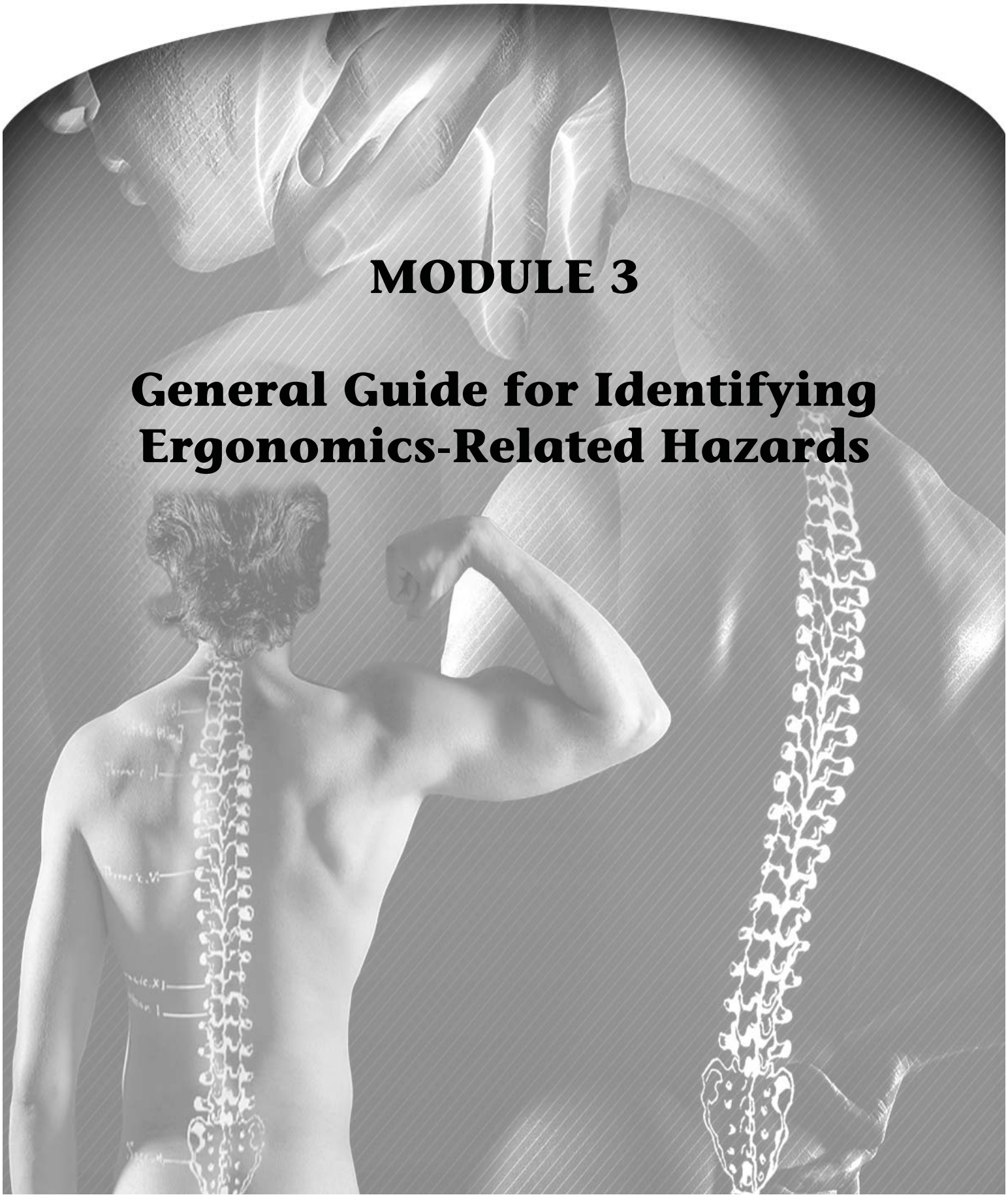
Employee Education – Program Evaluation

As with other hazards addressed under the HPP Regulations, the effectiveness of the ergonomics-related components must be evaluated. Records and statistics regarding ergonomics-related first aid and injuries are important considerations in conducting this evaluation.

The effectiveness of the ergonomics-related components can be evaluated when evaluating the hazard prevention program as a whole, and the findings can be recorded as part of the HPP evaluation report.

MODULE 3

General Guide for Identifying Ergonomics-Related Hazards



General Guide for Identifying Ergonomics-Related Hazards

Purpose

This General Guide for Identifying Ergonomics-Related Hazards is designed to provide you with a relatively quick and easy way to more formally assess the risk associated with exposures to some common ergonomics-related hazards. This checklist will tell you, for the ergonomics-related hazards included on the checklist, if the workers performing the task have an increased risk of developing a Musculoskeletal Injury (MSI).

Note:

This checklist identifies tasks that have at least a **moderate** level of risk, where research suggests that the number of MSI claims begin to increase when job demands are at or above the levels provided on this checklist. Generally, the more demands exceed levels on the checklist, the greater the MSI risk.

IMPORTANT – PLEASE READ BEFORE USING THIS CHECKLIST

This checklist can be used as part of an in-depth risk assessment process, as described in the Hazard Prevention Program, Part XIX of the Canada Occupational Health and Safety Regulations. If this checklist indicates that workers are exposed to ergonomics-related hazards at or above the levels provided, then the work place should consider if controls to reduce the workers' exposure to ergonomics-related hazards are required and the priority level for any required controls

The levels given on this checklist are not designed or intended to represent maximum acceptable or legal limits and should not be interpreted as such.

A job or task that does not expose workers to ergonomics-related hazards at or above the levels on the checklist is ***not necessarily free from significant risk of ergonomics-related hazards.*** *If workers are reporting MSIs, pain or discomfort, it may be necessary to use a different, more specific in-depth risk assessment method, or to review job and task demands to identify other work-related factors that may be contributing to the MSIs, pain or discomfort.*

It is recommended that this method ***NOT*** *be used for:*

- *Return to work assessment and evaluations*
- *Job placement and worker selection*
- *Assessing the work relatedness of an injury or disorder*
- *Identifying MSI hazards when handling people or animals*

Instructions

1 Document the job title or task, date and name of person(s) completing the worksheet.

2 Observe a sample of workers performing regular work activities.

3 Read the risk level criteria listed for each hazard.

4 For lift/lower and push/pull tasks consider if the job is always performed by male workers only, males and females, or females only.

5 Check the box if workers are exposed to hazards that meet or exceed the risk levels. Ask workers about specific items on the risk assessment checklist if you are unsure.

6 Write notes when the risk levels are met or exceeded to clarify the task or duty where the increased risk is present.

Note:

The risks associated with some ergonomics-related hazards, (e.g. hot and cold temperatures, handling of people or animals, contact stress, whole body vibration, lighting, and aspects of work organization) are not addressed in this checklist. If these or other ergonomics-related hazards exist, make note of them and use other risk assessment methods to determine if they contribute to the risk of ergonomics-related hazards for workers.

Things to Consider when Using the Guide

1. If the physical demands vary from day to day, due to different products or services being produced or provided, ask workers if the activity being observed is more or less demanding than on a typical day.
   - **i.** If less demanding, plan to come back when the demands are more typical.
   - **ii.** If more demanding, complete the checklist. It may be that the risk of ergonomics-related hazard is only increased when working with certain products or performing certain services. You should also reuse the checklist when the demands are more typical.
   - **iii.** If typical, but there are times when the demands are higher, reuse the checklist when the demands are higher, especially if an increased risk is not indicated by the checklist when observing typical demands.
2. **For non-repetitive activities,** add up the total time spent performing the specific activity/demand over the day. Observe on the days when the duration is longest when using the risk assessment checklist.
3. **For repetitive activities** (e.g. the same motion is done more than once every 6 – 30 seconds), add up the total time that the repetitive activity is performed per day. Observe on the days when the duration is longest when using the risk assessment checklist.
4. **Definition of Force**, refer to the *Guide on the Prevention of Musculoskeletal Injury (MSI).*

Estimating grip and push/pull forces:

The following method can be used to estimate grip, push and pull forces if you don't have a hand grip or push/pull force gauge.

Observe the workers performing the task (pinch or power gripping, pushing or pulling).

Ask the workers to stop doing the task.

Tell the workers that you want them to rank, on a scale from 0 to 10, how much force they need to exert when performing the gripping, pushing or pulling activity. Tell them that a 0 on this scale means no effort and a 10 means "as hard as you can, using as much force as you can generate".

Have the workers do the task again for a few more minutes or cycles.

Ask the workers to stop doing the task.

If looking at pinch or power gripping (page 5), have the workers pinch or power grip something solid as hard as they can for 3 to 4 seconds.*

If looking at pushing or pulling (page 5), have them push or pull as hard as they can for 3 to 4 seconds on something that won't move.*

Ask the worker to perform the gripping, pushing or pulling just once. As soon as they have done this, ask them to compare the amount of effort needed to do the task to how hard they gripped, pushed or pulled a few minutes ago when you asked them to grip, push, pull as hard as they could.* **Ask them**, "If the hardest you can grip, push or pull is a 10, how much effort is needed, from 0 to 10, to perform the task?"

For pinch and power gripping, if one or more workers tell you that the effort required to perform the task is 5 or higher, and gripping is done for more than two hours total per day, then place a check mark in the appropriate box (page 5).

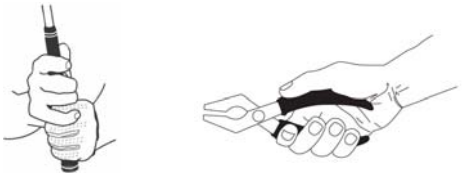
For pushing or pulling, if one or more workers tell you that the effort required to perform the push or pull is 5 or higher, place a check mark in the appropriate box (page 5).

* **Caution required:** There is a very small risk of injury from a one-time, short-duration high-level force exertion, in an awkward posture. If workers are experiencing any pain or discomfort then **do not ask** the worker to grip, push or pull something as hard as they can.

General Guide for Identifying Ergonomics-Related Hazards

JOB TITLE OR TASK:	
DATE COMPLETED:	COMPLETED BY:

Space for notes/comments is provided on the last page of this checklist

GRIP FORCE		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
PINCH GRIP	▪ Pinch gripping unsupported objects weighing 1 kg or more per hand for more than 2 hours total per day. **OR** ▪ Pinch gripping with a force of 2 kg or more per hand for more than 2 hours total per day. 	☐	
POWER GRIP	▪ Power gripping unsupported object weighing 5 kg or more per hand for more than 2 hours total per day. **OR** ▪ Power gripping with a force of 5 kg or more for more than 2 hours total per day. 	☐	

PINCH GRIP: force is primarily between the fingers and thumb.
POWER GRIP: force is primarily between the fingers and the palm.

MANUAL MATERIAL HANDLING TASKS		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
BACK/ SHOULDER	▪ Lifting/lowering is required for this job/task? If checked do weights exceed levels in tables 1 or 2?	☐	
	▪ Pushing/pulling is required for this job/task? If checked do initial push forces exceed levels in tables 3 or 4?		

If lifting/lowering is required for this job/task, does weight of the object exceed value in the appropriate table?

Step 1: **Choose the right table to use:**
If the task is performed by males only, **use table 1.** If the task is done by females only, or both males and females, **use table 2**.

Step 2: Determine whether the lift/lower is close or far:
Close – hands are 17 cm or less from body at all times during the lift/lower.
Far – hands are more than 17 cm from the body at any time during the lift/lower.

Step 3: Determine if the lift/lower is short or long:
Short – the object moves up/down no more than 25 cm.
Long – the object moves up/down more than 25 cm.

Step 4: Determine where the worker's hands end up at the end of the lift/lower

Step 5: Determine how often the object is lifted/lowered – once every 15 sec., 1 min., 2 min., 5 min., 30 min. or 8 hours.

Step 6: Compare the weight from the table to the actual weight of the object being lifted/lowered.

Example:

Only males do the job being assessed. The hands are more than 17 cm from the body, the item is moved up more than 25 cm, the worker's hands at the end of the lift are at just below shoulder height and the item is lifted once every 5 min. The value from table 1 for this example is 19 kg. To get this number:

1. Look at numbers in **table 1;**
2. Look at the numbers in the far-long row;
3. Find the numbers in the far-long row, under the heading "Hands end between knuckle and shoulder height"; and
4. Find the number for objects lifted once every 5 min. – 19 kg.

TABLE 1 – Lift/lower weights (kg) – use when task performed by males only																		
Type of Lift/Lower	Hands end below knuckle height once every...						Hands end between knuckle and shoulder height once every...						Hands end above shoulder height once every...					
	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.
Far – long	13	16	19	20	21	24	16	18	18	19	21	23	12	14	14	14	16	17
Far – short	15	19	22	24	24	28	20	23	24	25	27	30	15	18	18	19	21	23
Close – long	17	22	25	28	28	33	17	20	20	21	23	25	16	18	19	19	24	24
Close – short	21	26	30	32	33	38	21	26	27	28	31	34	20	24	25	26	29	31

TABLE 2 – Lift/lower weights (kg) – use when task performed by females only OR both males and females																		
Type of Lift/Lower	Hands end below knuckle height once every...						Hands end between knuckle and shoulder height once every...						Hands end above shoulder height once every...					
	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.
Far – long	9	9	10	10	11	14	8	10	11	11	12	14	6	7	8	8	8	10
Far – short	11	11	12	12	13	18	9	12	13	13	14	17	8	9	9	9	10	12
Close – long	11	12	13	13	14	19	9	11	12	12	13	15	8	9	10	10	11	13
Close – short	13	14	15	15	17	23	11	13	14	14	16	18	9	12	12	12	14	16

If pushing/pulling is required for this job/task, does initial push force to move the object exceed value in the appropriate table?

Step 1: Choose the right table to use:
If the task performed by males only, use **table 3**. If the task is done by females only, or both males and females, use **table 4**.

Step 2: Determine where the worker's hands are on the object while it is being pushed/pulled – at or below knuckle height, between knuckle and chest height, at chest height or higher.

Step 3: Determine how far the object is pushed/pulled – up to 2 meters, 2 – 7.5 meters, more than 7.5 meters.

Step 4: Determine how often the object is pushed/pulled – once every 15/20/30 sec., 1 min., 2 min., 5 min., 30 min. or 8 hours.

Step 5: Compare the force level from the table to the actual amount of force required for the push/pull to the object.

Example:

Both females and males do the job being assessed. The hands are below the worker's knuckle height on the object when it is being pulled, the item is pulled 1.5 metres, once a minute. The value from **table 4** for this example is 17 kg.

To get this number:

1. Look at numbers in **table 4;**
2. Look at the numbers in the "At or below knuckle height" row;
3. Find the numbers in the "At or below knuckle height" row that are under the heading for "Up to 2 metres";
4. Find the number for an object that is pulled up to 2 metres, once per min. – 17 kg.

TABLE 3 – Initial push/pull forces (kg) – use when task performed by males only (e.g. carts, trolleys, rolls, cables, wheelbarrows)

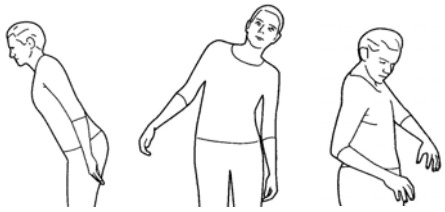
Height of hands on object being pushed/pulled	Up to 2 metres once every ...						2 - 7.5 metres once every ...						More than 7.5 metres once every …					
	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	20 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	30 sec	1 min.	2 min.	5 min.	30 min.	8 hr.
Chest height or higher	19	22	22	23	24	28	15	20	20	21	21	26	18	19	19	20	20	24
Between chest and knuckle	27	31	31	32	33	39	21	28	28	29	30	36	25	26	26	28	28	33
At/or below knuckle height	30	34	34	37	37	44	24	31	31	33	34	40	28	29	29	31	32	38

TABLE 4 – Initial push/pull forces (kg) – use when task performed by females only OR both males & females (e.g. carts. trolleys. rolls. cables. wheelbarrows)

Height of hands on object being pushed/pulled	Up to 2 metres once every ...						2 – 7.5 metres once every ...						More than 7.5 metres once every …					
	15 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	20 sec	1 min.	2 min.	5 min.	30 min.	8 hr.	30 sec	1 min.	2 min.	5 min.	30 min.	8 hr.
Chest height or higher	18	21	22	24	25	27	19	19	20	22	23	24	17	17	17	19	20	21
Between chest and knuckle	18	21	22	24	25	27	18	20	20	22	23	25	16	17	17	19	20	21
At/or below knuckle height	15	17	17	19	20	21	15	17	17	19	20	21	13	14	15	16	17	18

Values in tables 1-4 are adapted from Snook SH and Ciriello VM, (1991), The design of manual handling tasks: Revised tables of maximum acceptable weights and forces, Ergonomics 34, 1197-1213.

AWKWARD POSTURES		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
NECK	▪ Working with the neck bent forward or to the side more than 30° for more than two hours total per day.  SIDE FORWARD *(circle the appropriate movements)*	☐	
	▪ Working with the neck rotated more than 45° in either direction for more than two hours total per day. 	☐	
	▪ Working with the neck bent back/up more than 20° for more than two hours total per day. 	☐	
SHOULDER	▪ Working with the hand(s) at or above the head for more than two hours total per day. 	☐	
	▪ Working with the elbow(s) at or above the shoulder for more than two hours total per day. 	☐	

AWKWARD POSTURES		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
BACK	▪ Working while sitting or standing with the back bent forward, sideways, or twisted more than 30° for more than two hours total per day.  FORWARD SIDE TWISTED *(circle the appropriate movements)*	☐	
	▪ Working while sitting or standing with the back bent back more than 20°, and with no support for the back, for more than two hours total per day.  BACKWARD	☐	
KNEES	▪ Worker squats/kneels for more than two hours total per day.  SQUAT KNEEL *(circle the appropriate movements)*	☐	

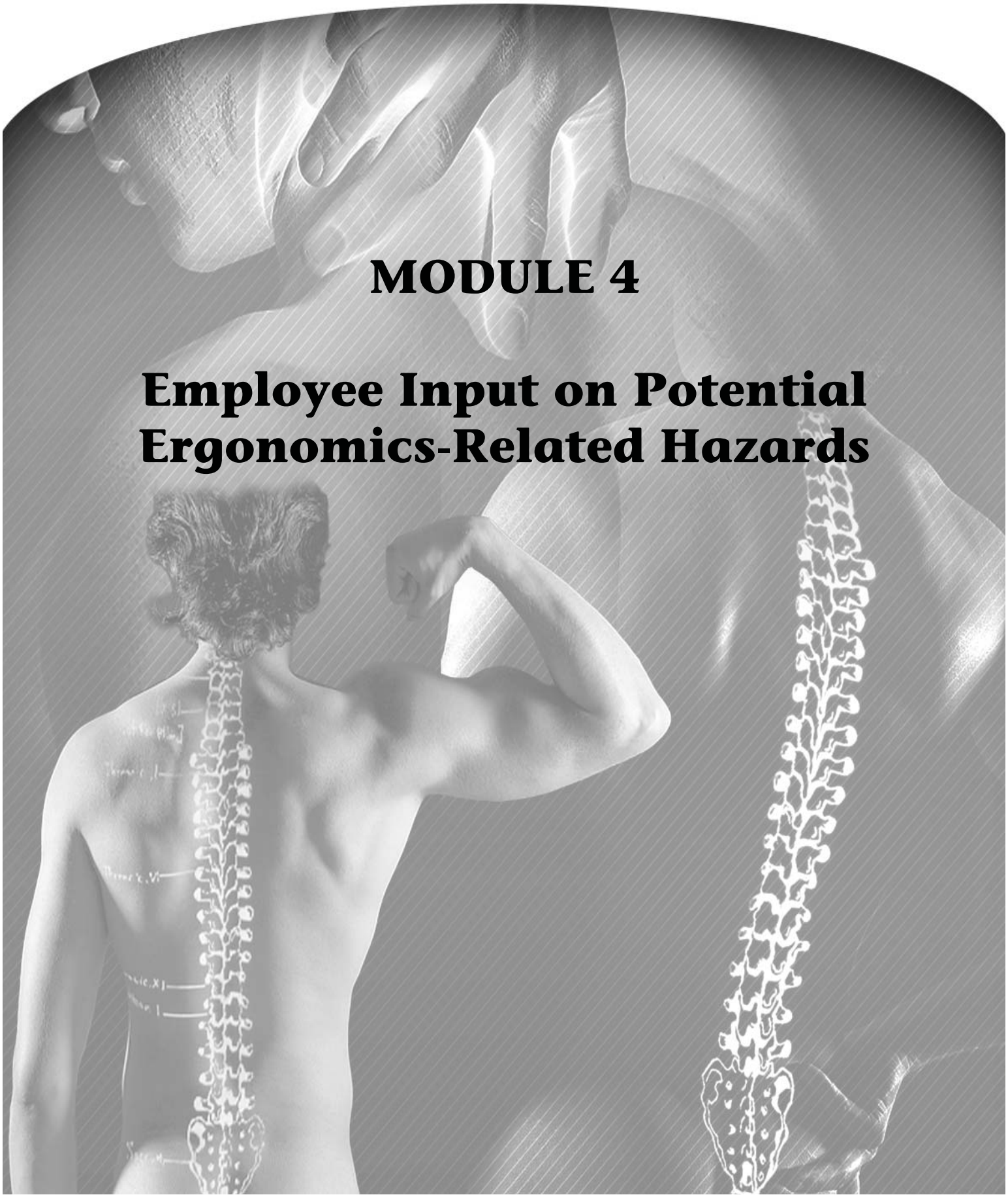
STATIC WHOLE BODY POSTURES		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
PROLONGED SITTING	▪ Worker sits for more than six hours total per day.	☐	
PROLONGED STANDING	▪ Worker stands on a hard surface for more than four hours total per day (standing in one location without taking more than two steps in any direction).	☐	

REPETITION		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
NECK, SHOULDERS, ELBOWS, WRISTS OR HANDS	▪ Worker repeats the same motion with the neck, shoulders, elbows, wrists or hands every few seconds with little or no variation for more than two hours total per day (excluding keying activities). *Check body parts that apply:* ☐Neck ☐Shoulder(s) ☐Elbow(s) ☐Wrist(s) ☐Hand(s)	☐	
KEYBOARDING	▪ Worker performs intensive keying more than four hours total per day.	☐	

REPEATED IMPACTS		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
HANDS/ KNEES	▪ Employee uses one of the following as a hammer more than 10 times per hour and for more than two hours total per day. *Check body parts that apply:* ☐Hand (heel/base of palm) ☐Knee	☐	

HAND/ARM VIBRATION		CHECK HERE IF REQUIRED AT THIS JOB/TASK	NOTES
HANDS/ WRISTS	▪ Use high vibration tools (impact wrenches, carpet strippers, chainsaws, jackhammers, scalers, riveting hammers) for more than 30 minutes total per day.	☐	
	▪ Use hand tools that typically have moderate vibration levels (grinders, sanders, jig saws) for more than two hours total per day.	☐	

Notes:



MODULE 4

Employee Input on Potential Ergonomics-Related Hazards

Employee Input on Potential Ergonomics-Related Hazards

This ergonomics-related hazard identification tool is provided to help you identify if your job or task has ergonomics-related hazards which **may** increase the risk of developing a musculoskeletal injury (MSI). This tool only identifies whether ergonomics-related hazards exist. It does **not** assess the level of risk, and this tool alone should not be used to determine if ergonomics-related hazard controls should be implemented.

IMPORTANT – READ THIS BEFORE USING THIS TOOL

- *This tool alone is not enough to determine if ergonomics-related hazard controls should be implemented and should be used with other hazard identification methods such as analysis of injury, and incident and first aid reports.*
- *This tool **IS NOT** intended to be used for:*
  - *Return to work*
  - *Job placement/worker selection*
  - *Assessing the work relatedness of an injury or disorder*

Instructions

1. Document the job title or task, the date and your name (optional).
2. Consider whether you think the objects are heavy, or the task is difficult/tiring.
3. Consider whether you perform a task repeatedly or for a long period of time.
4. Consider whether you adopt an awkward posture repeatedly or for a long period of time.
5. Check the appropriate box(es) that apply to the job/task
   a. Only make a check mark when the specific hazard exists and when you believe that it is difficult, tiring, heavy, done repeatedly, or done for a long time.
6. Write notes for any identified hazard to clarify the task or activity where it occurs.
7. Return the completed forms to your manager/supervisor or health and safety representative or health and safety committee member.

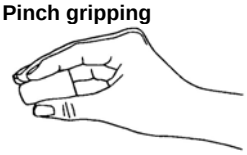
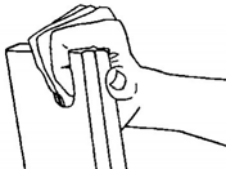
Note:

If the physical demands related to the activity vary from day to day, due to different products/services being produced or provided, complete the checklist considering a more demanding day and then reuse the tool for a typical day.

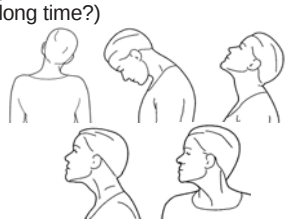
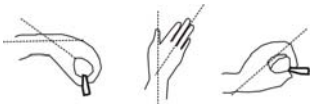
Some ergonomics-related hazards, (e.g. lighting, aspects of work organization) are not addressed in this tool. If these or other ergonomics-related hazards exist, make note of them and any other concerns.

Employee Input on Ergonomics-Related Hazards

JOB/TASK INFORMATION:	
JOB TITLE OR TASK:	
DATE COMPLETED:	COMPLETED BY (optional):
GENERAL COMMENTS:	

MUSCULOSKELETAL INJURY (MSI) HAZARDS – GRIPPING		**Check if required**
Pinch gripping 	Work with unsupported objects(s).	☐
	Find it difficult/tiring holding or manipulating object(s).	☐
	Find it difficult/tiring squeezing to open/close.	☐
Power gripping 	Work with unsupported heavy object(s).	☐
	Find it difficult/tiring holding or manipulating object(s).	☐
	Find it difficult/tiring squeezing to open/close.	☐
	Notes:	

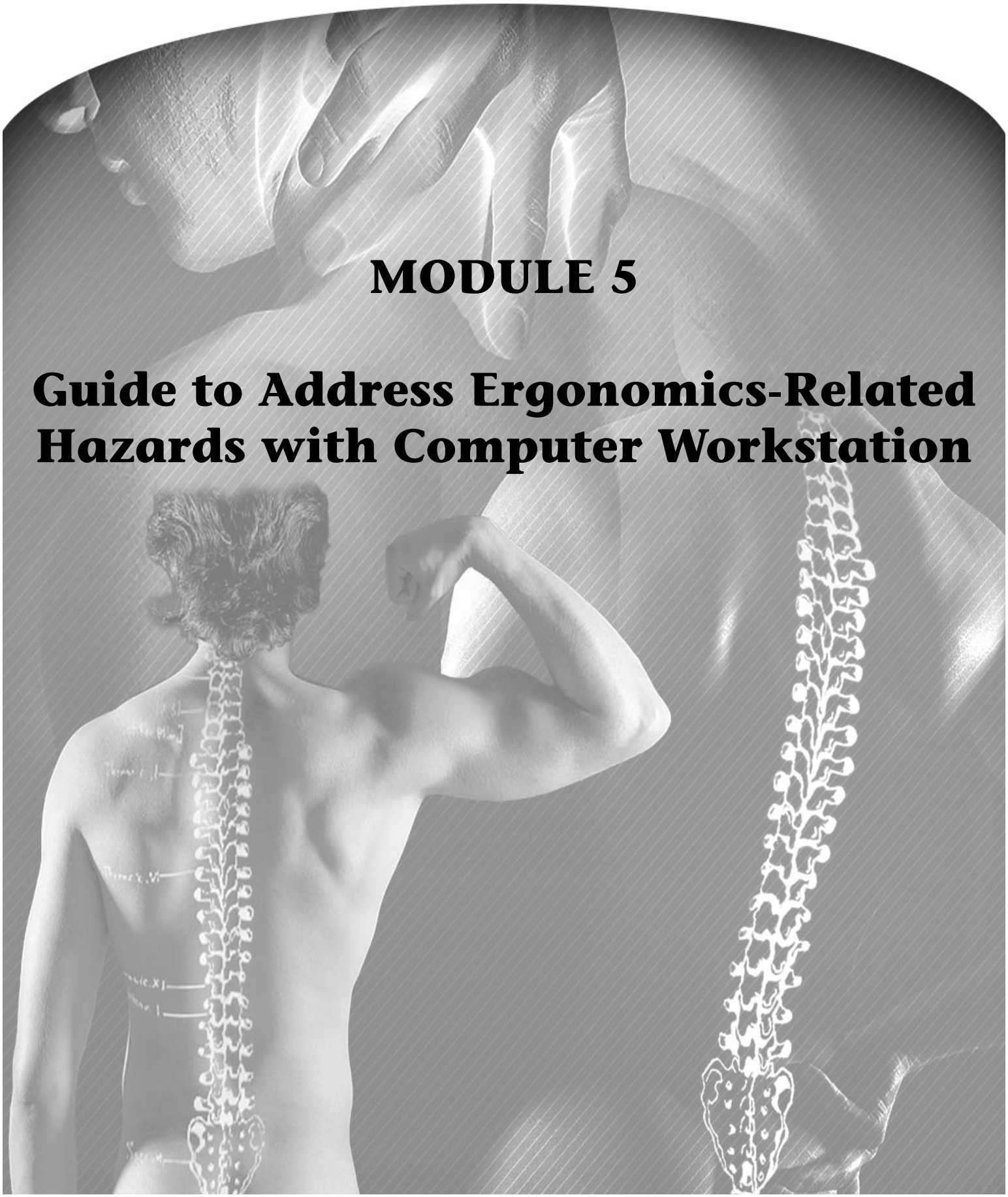
MSI HAZARDS – FORCE		**Check if required**
Lifting/Lowering (Consider both one and two handed lifting/lowering)	Work with an object that is heavy/difficult to lift/lower.	☐
	Work with an object that is lifted/lowered repeatedly.	☐
	Work with an object that is above the shoulders.	☐
	Work with an object that is below the knees.	☐
	Work with an object that is far away from the belly button.	☐
	Work with loads that are unstable, unbalanced, uncooperative, or unpredictable.	☐
	Work with lifting/lowering postures that are awkward (bend, twist, kneel, reach, sit).	☐
	Notes:	

MSI HAZARDS – FORCE		Check if required
Pushing/Pulling (Consider one and two handed pushing/pulling. Also, consider whole body and arms/upper body only pushing/pulling)	Object feels hard/difficult to push/pull.	☐
	Pushing/pulling is performed repeatedly.	☐
	Object is pushed with hands above the shoulders.	☐
	Object is pushed with hands below the waist.	☐
	Pushing/pulling postures are awkward (bend, twist, kneel, reach, sit).	☐
	Notes:	
MSI HAZARDS – AWKWARD/FIXED POSTURE		**Check if required**
Awkward Posture (Do you frequently assume these postures and/or hold them for a long time?) 	Work with neck bent forward (chin close to chest).	☐
	Work with neck bent to one side (ear close to shoulder).	☐
	Work with neck twisted to either side/chin close to shoulder.	☐
	Work with neck bent back.	☐
	Work with neck bent forward and chin out (head forward).	☐
	Work with hand(s) at/or above the head.	☐
	Work with elbow(s) at/or above the shoulder.	☐
	Work with elbows/hands behind the body.	☐
	Work while sitting or standing with the back noticeably bent forward, sideways or twisted.	☐
	Work with back noticeably bent backward with no support for the back.	☐
	Work while squatting/kneeling.	☐
	Work with wrist noticeably bent down or up.	☐
	Work with wrist noticeably bent to the side (toward thumb/little finger).	☐
	Work with hand turned so palm faces fully up or down.	☐
Fixed Posture	Work while sitting for long periods without standing (office work, driving).	☐
	Work while standing still on a hard surface for a long period of time.	☐

MSI HAZARDS – REPETITION		Check if required
Repetition (Do you repetitively move the same body part – with little opportunity for recovery?)	Work while performing the same neck motions repeatedly.	☐
	Work while performing the same shoulder motions repeatedly.	☐
	Work while performing the same elbow motions repeatedly.	☐
	Work while performing the same wrist motions repeatedly.	☐
	Work while performing the same hand/finger motions repeatedly.	☐
	Work while performing intensive keyboarding.	☐
	Work while performing intensive mousing.	☐
MSI HAZARDS – OTHER		**Check if required**
Related impacts	Use my hand or knee as a hammer.	☐
Contact Stress	Tool handle digs into my hand/palm.	☐
	Workstation/equipment edges/products dig into my body (hand, forearms, trunk, thighs).	☐
Hand-Arm Vibration	Work with vibrating tools (impact wrenches, carpet stripper, chainsaw, jackhammers, riveting hammers, grinders, sanders, jig saws, jack-leg drills).	☐
Whole-Body Vibration	Operate mobile equipment/vehicles on rough, uneven surfaces.	☐
Cold/Hot Temperatures	Work in an environment that is cold, my hand/arms are exposed to cold air.	☐
	Work in an environment that is hot/humid.	☐

MODULE 5

Guide to Address Ergonomics-Related Hazards with Computer Workstation



Guide to Address Ergonomics-Related Hazards with Computer Workstation

This ergonomics-related hazard identification Tool is provided to help you identify ergonomics-related hazards that may be present for jobs/tasks performed at an individual's computer workstation, where a specific worker **may** be at an increased risk of developing an MSI. This tool **only** identifies whether hazards exist. It does not assess the level of risk, and this tool alone should **not** be used to determine if ergonomics-related hazard controls should be implemented.

IMPORTANT - READ THIS BEFORE USING THIS TOOL

- *This tool alone is not enough and should be used with other hazard identification methods such as analysis of injury, and incident and first aid reports.*
- *This tool **IS NOT** intended to be used for:*
  - *Return to work*
  - *Job placement/worker selection*
  - *Assessing the work relatedness of an injury or disorder*

Instructions

1 Document the job title or task, date and name of person(s) completing the worksheet.

2 Observe the worker performing regular work activities at the computer workstation.

3 Ask the worker for opinions about specific issues that may be hard to observe (pressure on the back of the knee, repeated trunk bending, adequate lighting, glare).

4 Ask the worker whether they perform a task or adopt an awkward posture repeatedly or for a long period of time.

5 Check the appropriate box that applies to the job or task for each of the ergonomics-related hazards listed.

6 Review the contents of the tool with the worker who works at the computer workstation.

Ask whether additional tasks are performed that were not captured.

7 Attempt to reduce or eliminate ergonomics-related hazards identified using corrective options. The corrective options listed represent possible solutions, but are not an exhaustive list.

8 Make notes on any attempts made to reduce or eliminate the ergonomics-related hazards or on any further actions required.

Notes:

If the task demands vary from day to day, ask the worker if the activities being observed are more or less demanding than on a typical day.

- If less demanding, plan to come back when the demands are both more typical and, if appropriate, higher.
- If more demanding, complete the hazard identification tool. It may be that ergonomics-related hazards are only a concern when performing specific tasks/activities. You should also reuse the tool when the demands are more typical.
- If typical, but there are times when the demands are higher, reuse the tool when the demands are higher, especially if there are no ergonomics-related hazards identified when observing typical demands.

Some ergonomics-related hazards, (e.g. aspects of work organization, work practices) are not addressed in this tool. If these or other ergonomics-related hazards exist, make note of them and plan to assess whether they contribute to the MSI risk for individual workers.

Guide to Address Ergonomics-Related Hazards with Computer Workstation

Adapted from Manitoba Labour and Immigration – Workplace Safety and Health Division's Office Ergonomics Risk Factor Checklist

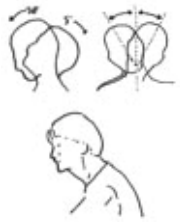
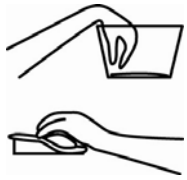
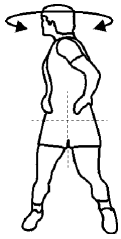
JOB/TASK INFORMATION	
JOB TITLE OR TASK:	
DATE COMPLETED:	COMPLETED BY:

A. CHAIR

ERGONOMICS-RELATED HAZARDS		IS THE HAZARD PRESENT? YES	IS THE HAZARD PRESENT? NO	CORRECTIVE OPTIONS Potential steps to reduce or eliminate the risk associated with the ergonomics-related hazard
	1. Feet cannot rest flat on floor.	☐	☐	▪ Raise/lower chair to allow feet to rest comfortably flat on floor. ▪ Use footrest if keyboard/desk height requires an elevated chair.
	2. Unable to sit with thighs parallel to the floor, or with a slight downward angle from hips to knees.	☐	☐	▪ Adjust chair height so that feet remain flat on floor or footrest but thighs are also parallel to floor.
	3. Front edge of seatpan presses into back of knee.	☐	☐	▪ Choose a chair with 2-3 fingers width between front edge of chair and back of knees. ▪ Attach a removable back support cushion to existing backrest to shorten seat pan. ▪ Choose a chair with a gently curved front edge on seat pan.
	4. Chair lumbar support NOT supporting the small of the back (i.e. the curve of the lumbar spine).	☐	☐	▪ Raise/lower the back rest so the small of the back is in contact with the most outward curved areas of the back support. ▪ Place a rolled up towel or attach a removable back support cushion to existing back support.
	5. Space exists between spine and back rest.	☐	☐	▪ Arrange workstation to allow proper back support. (i.e. position keyboard closer to user, bring monitor closer to user). ▪ Remove or lower arm rests which may prevent sitting back fully due to contact with front of desk or keyboard tray. ▪ Replace the seat pan if it's too long and doesn't allow for sitting back fully in chair.

A. CHAIR				
ERGONOMICS-RELATED HAZARDS		**IS THE HAZARD PRESENT?**		**CORRECTIVE OPTIONS** **Potential steps to reduce or eliminate the risk associated with the ergonomics-related hazard**
		YES	**NO**	
	6. Armrests provide inadequate forearm support when keying or mousing. Hunched shoulders – armrests too high; learning to one side – armrests too low; elbows away from the body – armrests too wide.	☐	☐	If armrests are too low/too high: ▪ Add padding to bring them up to a comfortable level. ▪ Only use the armrest during short pauses from typing. ▪ Replace with armrests that can be adjusted to the correct height. If armrests are too wide: ▪ Adjust to bring them closer together. ▪ Replace seat pan on chair with a narrower one. ▪ Replace with width-adjustable armrests.
NOTES:				

B. KEYBOARD AND MOUSE OR OTHER INPUT DEVICE				
ERGONOMICS-RELATED HAZARDS		**IS THE HAZARD PRESENT?**		**CORRECTIVE OPTIONS** **Potential steps to reduce or eliminate the risk associated with the ergonomics-related hazard**
		YES	**NO**	
	1. Wrist is not flat, forearms not parallel with floor or shoulders are tensed when using keyboard, mouse or other input device.	☐	☐	▪ Adjust seat height so that keyboard and mouse sits just below elbow height. ▪ Raise or lower adjustable work surfaces in systems furniture so that they are just below seated elbow height. ▪ Place keyboard and mouse on articulating keyboard tray and adjust tray height and tilt until wrists are working in neutral posture. ▪ Retract keyboard feet. ▪ Support arms on armrest when keying or mousing.
	2. Wrist is deviated when using keyboard, mouse or input device.	☐	☐	▪ Ensure adequate space for input device. ▪ Use an appropriately sized keyboard (e.g. external keyboard if laptop is used regularly on desk).
	3. Reaching to side or front when using mouse or other input device (i.e. the elbow is away from side of body).	☐	☐	▪ Place mouse/input device beside keyboard at same height. ▪ Use a mouse bridge (i.e. a hard surface that is placed over number pad on keyboard). ▪ Ensure adequate space on either the desk top or a keyboard tray for input devices.
NOTES:				

C. MONITOR AND WORKSTATION				
ERGONOMICS-RELATED HAZARDS		**IS THE HAZARD PRESENT?**		**CORRECTIVE OPTIONS** **Potential steps to reduce or eliminate the risk associated with the ergonomics-related hazard**
		YES	**NO**	
	1. Head tilted up/down, repeatedly or for a long time, while working at desk.	☐	☐	▪ Raise/lower monitor so that eyes are in line with top line of text. Monitor may need to be lowered for bifocal wearers if they look at the monitor through the bottom of their lenses. ▪ If using a number of paper documents, use document holder that sits between the worker and the monitor.
	2. Head turned to the side, repeatedly or for a long time, when working.	☐	☐	▪ Position monitor directly in front of user. ▪ Place documents on holder located in line with the computer.
	3. Neck tilted to the side, (i.e. holding phone between ear and shoulder).	☐	☐	▪ Maintain one hand on phone. ▪ Use a hands-free system (e.g. headphone).
	4. Head is not directly over spine (i.e. the head is forward and the chin is out).			▪ Arrange workstation to allow for proper posture, (e.g. sit back in chair, pull keyboard to user, change location/height of monitor).
	5. Hard/sharp objects press into skin (e.g. wrist, elbow or forearm resting on a hard edge/surface).	☐	☐	▪ Move keyboard/input devices to the edge of desktop to avoid resting hand/wrist on edge. ▪ Use a wrist rest for support during pauses in keying. ▪ Pad sharp edges on desktop with foam. ▪ Replace object with objects with rounded edges. ▪ Install keyboard tray with wrist rest for support during pauses in typing.
	6. Twisting of torso (e.g. reaching behind or across the body).	☐	☐	▪ If user is right-handed, arrange accessories (except telephone) to the right of the computer. ▪ Locate telephone on the left in order to answer with the left hand and take notes with the right. Opposite set-up if left handed. ▪ Determine which accessories are used most frequently and locate them closest to the user. ▪ Encourage users to stand up when retrieving items behind them.
	7. Inadequate clearance under desk for legs.	☐	☐	▪ Remove materials underneath desk. ▪ Raise desktop surface for taller individuals, or chair may be lowered if knees remain at or slightly below the hips. ▪ Install keyboard tray to increase distance between monitor and desktop and provide more leg room.

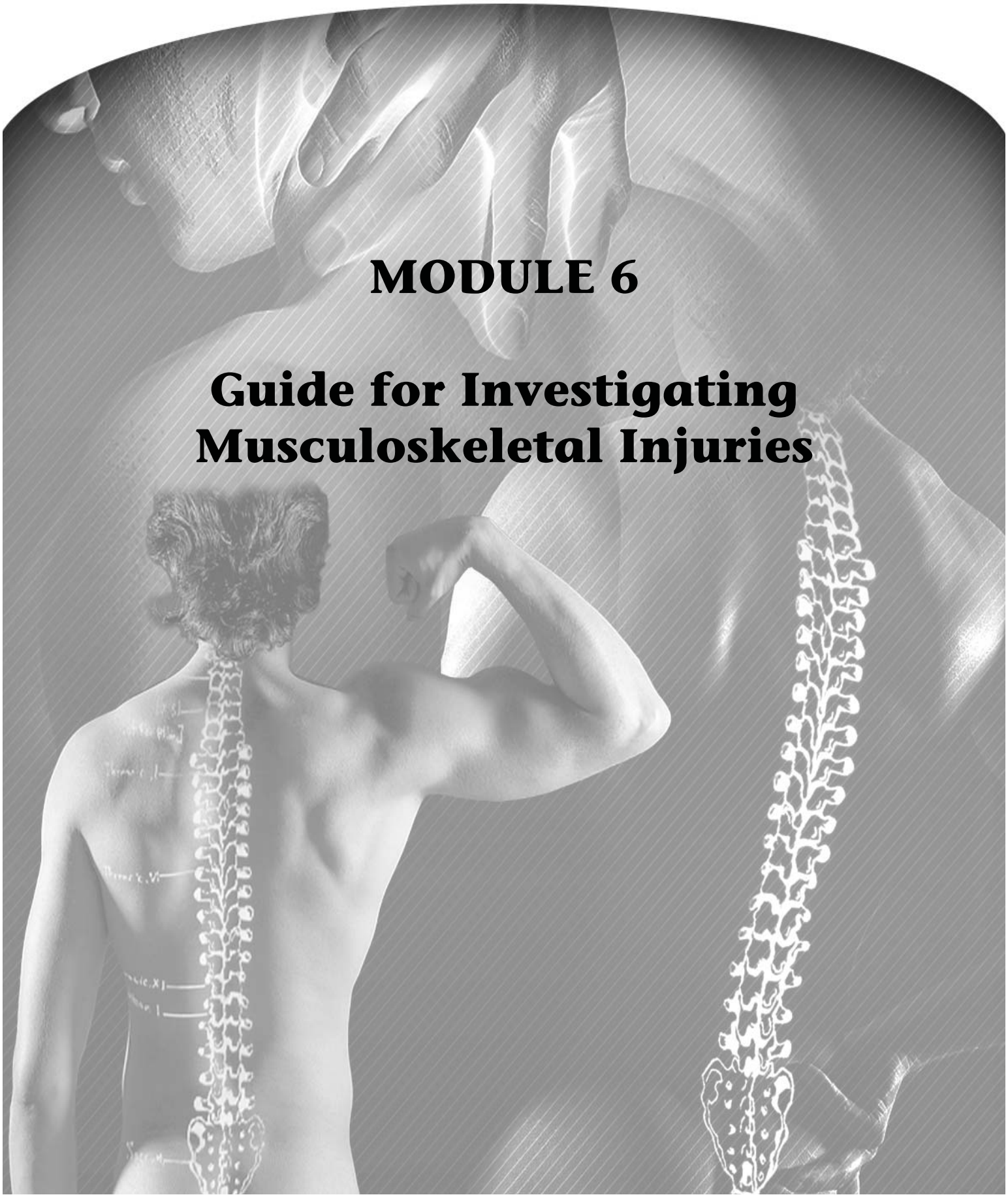
	8. Repeated or prolonged trunk bending (e.g. filing documents).	☐	☐	▪ Where possible, perform filing on a desk surface, or other surface that allows for neutral back postures.
NOTES:				

D. ENVIRONMENTAL

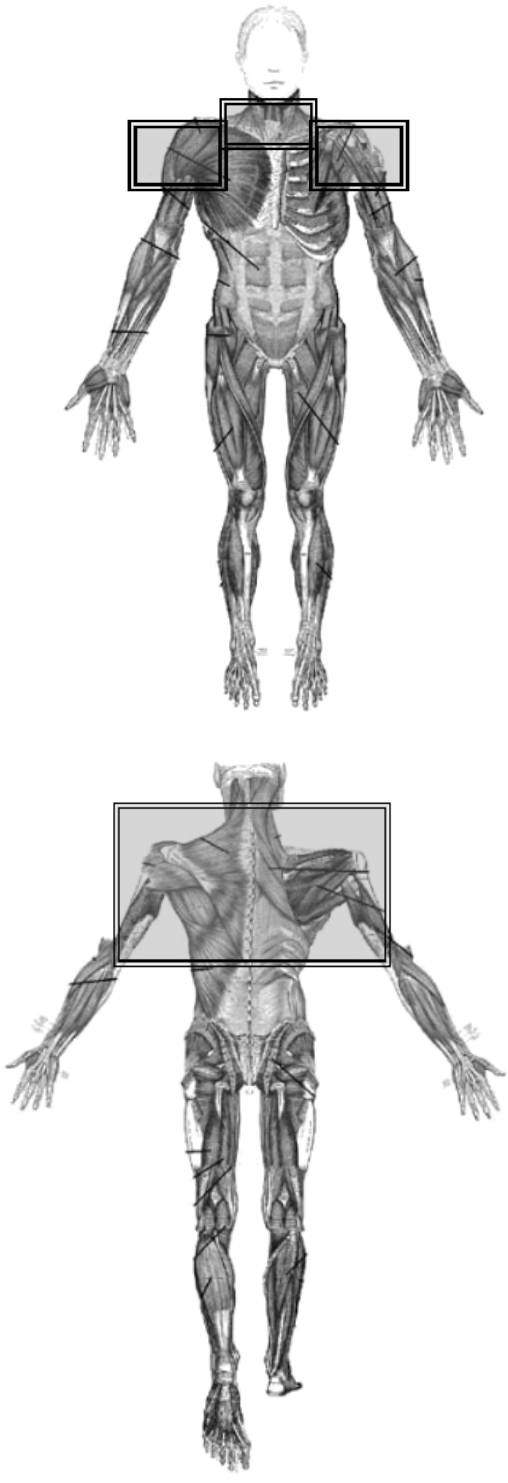
ERGONOMICS-RELATED HAZARDS		**IS THE HAZARD PRESENT?**		**CORRECTIVE OPTIONS Potential steps to reduce or eliminate the risk associated with the ergonomics-related hazard**
		YES	**NO**	
	1. Too much/too little light.	☐	☐	▪ Reduce the amount of light in work area, especially from ceiling-mounted light fixtures. ▪ Use low gloss, off-white colour on surfaces. ▪ Use appropriate task lighting.
	2. Glare on monitor.	☐	☐	▪ Prevent source of glare from reaching monitor, (i.e. use opaque vertical blinds, use glare screens). ▪ Place monitor at right angles to windows. ▪ Use LCD monitors.
	3. Temperature is less than 20°C or more than 24°C (dependent on individual comfort and season).	☐	☐	▪ Raise/lower temperature to individual comfort. ▪ Wear more/less warm clothing. ▪ Use individual heaters where appropriate.
NOTES:				

MODULE 6

Guide for Investigating Musculoskeletal Injuries



Guide for Investigating Musculoskeletal Injuries



Neck, Shoulders, Upper back

Ergonomics-related hazard: Lift/lower

1. Do you lift/lower objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

1a. Eliminate or reduce the need to manually lift, lower or carry objects by using mechanical means such as cranes, hoists and pallet jacks.

1b. Reduce the distance of the load from the employee by removing any obstacles between the employee and the load so that the employee can move closer to the object.

1c. Reduce the distance between the load and the employee by moving the load closer to the employee by using a mechanical aid such as a turntable.

1d. Reduce the overall weight of the load by splitting into smaller loads.

1e. Use gravity to assist in manual handling by having a lift destination lower than the lift origin.

1f. Explore and implement ways of reducing the physical demands if the physical demand of the job/task, as is, is not compatible with the employee capability.

2. Do you lift or lower objects that are difficult to grasp or hold on to?

Consider the following:

2a. Grasping can be made easier by providing or improving grip/handles on objects being handled.

2b. Use properly fitting anti-slip gloves.

3. Do you get into an awkward posture (stooping, reaching) when lifting or lowering?

Consider the following:

3a. Use height adjustable mechanical device, such as a scissor lift, to keep loads off the floor and above knee height.

3b. Lifts below knee height and above shoulder height can be avoided by adjusting storage shelves, etc.

3c. Improve work space layout to ensure the employee can handle the loads without getting into a stooped or twisted position.

3d. Improve the position of the employee and/or the load to reduce the reach distance away from the body to grasp the object.

4. Do you lift objects over a significant height?

Consider the following:

4a. Starting and ending locations of the lift can be better arranged to reduce the overall vertical travel distance a load has to be lifted. (e.g. modify storage practices, change shelf height, etc.)

5. Do you lift/lower objects while being seated?

Consider the following:

5a. Establish work procedure to prevent lifting of loads that are heavier than 4 kg when seated (stand and use larger, stronger muscles if lifting heavier objects).

6. Do you perform lifting/lowering tasks repeatedly or frequently?

Consider the following:

6a. Tasks that are physically demanding can be better organized to ensure they are not performed continually for prolonged periods.

6b. Use job rotation/enhancement practices and pause periods to permit muscles to recover from applying force for prolonged periods.

Ergonomics-related factor: Carry

7. Do you carry objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

7a. Carts, motorized buggies, conveyors, gravity feed system, etc. can be used to transport load rather than carrying.

7b. Use devices/tools such as carrying handles and extension handles to assist with carrying.

7c. Organize work tasks in order to reduce the carrying distance.

7d. Housekeeping will ensure the path can be kept clear of obstructions and trip hazards when carrying items.

7e. Eliminate the work practice of carrying objects up or down stairs while using both hands to hold the object. (Such work practices should not be permitted. Use one hand to hold the hand rail.)

7f. Reduce the overall weight of the load by splitting into smaller loads. (i.e. manufacturers may have different size options that can be ordered.)

7g. Work practice of carrying objects on shoulders can be eliminated or made easier by using shoulder pads.

Ergonomics-related factor: Push or pull

8. Do you push or pull objects?

Consider the following:

8a. Eliminate the need to manually push or pull by using mechanical devices such as conveyors, cranes or gravity fed systems.

8b. Use larger wheels to enable carts/bins to roll over minor cracks or holes on floor more easily.

8c. Use wheels/casters that are suitable for the load being transported and are compatible with the type of flooring. (Improve wheels/casters.)

8d. Pushing will be easier with better swivel arrangement of casters – 2 or 4, front or back.

8e. Incorporate brakes or improve the existing brakes in the cart so it can be stopped safely and with less physical effort.

8f. Reduce the physical effort required for pushing by properly maintaining the cart/bin, especially the wheels and wheel bearings.

8g. Whenever possible, ensure flooring is smooth but not slippery, level, in good condition (no significant cracks or holes), and is clean (no debris).

8h. Ensure load is stabilized before being pushed or pulled. (e.g. boxes stacked are tilted, not secured).

8i. Whenever possible, carts, bins, etc. should pulled rather than being pushed.

8j. Wear suitable footwear for the conditions when performing pushing and pulling.

9. Do you get into awkward postures when pushing (or pulling) objects?

Consider the following:

9a. Use carts with vertical or height adjustable handles in order to permit grasping the handle in a neutral position (accommodate people of varying heights).

9b. Increase the space in the work place to allow room for the pushing and pulling to be initiated and maintained in a neutral/comfortable posture.

9c. Remove visual barriers to reduce twisting or bending parts of the body to see around the cart, bin, etc.

Ergonomics-related factor: Grip force

10. Do you grip or grasp objects using significant force?

Consider the following:

10a. Eliminate the need for a manual grip by using a mechanical device such as clamps or vice grips.

10b. Select and use tools/equipment that permits a power grip.

10c. Use tools that are lighter and designed to reduce hand torque and kickbacks.

10d. Use tools that are balanced and do not require extra muscular effort to hold it in position.

10e. Use tools that can be safely used by the left or right hand.

10f. Improve tool inspection and maintenance so that extra force is not required when using the tool.

10g. Support the weight of heavy or unbalanced tools by using overhead or under-tool supports.

10h. Improve work procedure to keep time spent gripping objects to a minimum and the total time spent gripping are broken into shorter periods rather than being continuous.

11. Is awkward posture of the neck or shoulders encountered when gripping tools, equipment or objects?

Consider the following:

11a. Eliminate/minimize awkward posture by not grasping bulky heavy objects.

Ergonomics-related factor: Repetition

12. Do you perform tasks repeatedly using the same body part without the opportunity for that body part to rest or recover, resulting in fatigue of the soft tissues in that body area?

Consider the following:

12a. Eliminate or reduce repetitive tasks by mechanization (use of power tools) or by automation.

12b. Reduce the duration of performing repetitive task through well-designed job rotation or job enhancement (adding variety to the job).

12c. Greater flexibility can be incorporated into the repetitious task, thereby enabling the employee to control/modify the pace of repetition to prevent adverse effects.

12d. Utilize micro-breaks to permit adversely affected soft tissues to rest and recover when performing highly repetitious tasks.

12e. Train employees in improved work techniques in order to reduce unnecessary repetition.

Ergonomics-related factor: Work postures – Awkward posture of the neck

13. Do you perform tasks during which your neck gets into awkward postures frequently for a prolonged period (repetitive twisting or bending of the neck, in any direction)?

Consider the following:

13a. Reduce/eliminate the glare on a monitor by redesigning the workspace or using a anti-glare screen or proper window treatments.

13b. Wear proper eyewear when reading (e.g bifocal glasses cause the worker to put their neck in an awkward position, use task specific glasses for viewing a computer screen).

13c. Position the objects/persons that need to be frequently viewed in front so that twisting of the neck is avoided.

13d. Keep objects, including computer monitors, which need to be frequently viewed, at a more suitable height that will not require tilting of the head to look up or down.

Ergonomics-related factor: Work postures – Awkward posture of the shoulder

14. Do you perform tasks during which your shoulder gets into awkward postures (elbow away from the side of your torso, in any direction) frequently for a prolonged period?

Consider the following:

14a. Reduce awkward posture of the shoulder by keeping frequently accessed materials close to avoid excessive reach away from the body in any direction. For example, a tilted work surface (drafting table, tilted material bins) may be a viable option.

14b. Reduce awkward posture of the shoulder by keeping frequently accessed materials below shoulder height to avoid reaching above shoulder height.

14c. Avoid reaching behind or across the body by keeping materials that need to be accessed in suitable location in front of employee.

14d. Establish safe work procedures to reduce awkward posture, such as by moving closer to the object being accessed and transferring objects from one hand to another instead of reaching across the body.

Ergonomics-related factor: Awkward static (fixed) work posture of the neck or shoulders

15. Do you perform tasks during which your neck or shoulder is held in a static (fixed) awkward position for prolonged periods?

Consider the following:

15a. Static awkward posture of the neck can be reduced by periodically changing position so that the neck is not kept in a static (or fixed) position for a period long enough for the muscles to get “tired”.

15b. Eliminate the need for bending the neck by redesigning the workstation or using assistive devices such as using a hands free telephone headset.

15c. Static awkward posture of the shoulder can be reduced by periodically changing position so that the shoulder is not kept in a static or fixed position for a period long enough for the muscles to get “tired”.

16. Do you experience contact of the neck, shoulder or upper back with an edge?

Consider the following:

16a. Contact of neck, shoulder or upper back with a sharp/hard edge can be avoided by providing a better work environment or by padding the sharp/hard edges.

16b. Change or improve work practice to reduce resting of the body part or leaning against sharp edges.

17. Are your neck, shoulders, or upper back exposed to vibration for prolonged periods?

Consider the following:

17a. Select tools and equipment with lower vibration levels.

17b. Keep tools and equipment well maintained to minimize vibration.

17c. Organize the work schedule (e.g. employee rotation) to provide a break from the exposure to vibrations.

17d. Attempt to dampen some of the vibration of tools by using items such as vibration damping gloves.

18. Are your neck, shoulders, or upper back exposed to cold temperatures when performing physical demanding tasks?

Consider the following:

18a. Organize the work schedule (e.g. employee rotation) to permit alternative periods of warm work to warm the employee.

18b. Use suitable clothing and/or provide localized radiant heat.

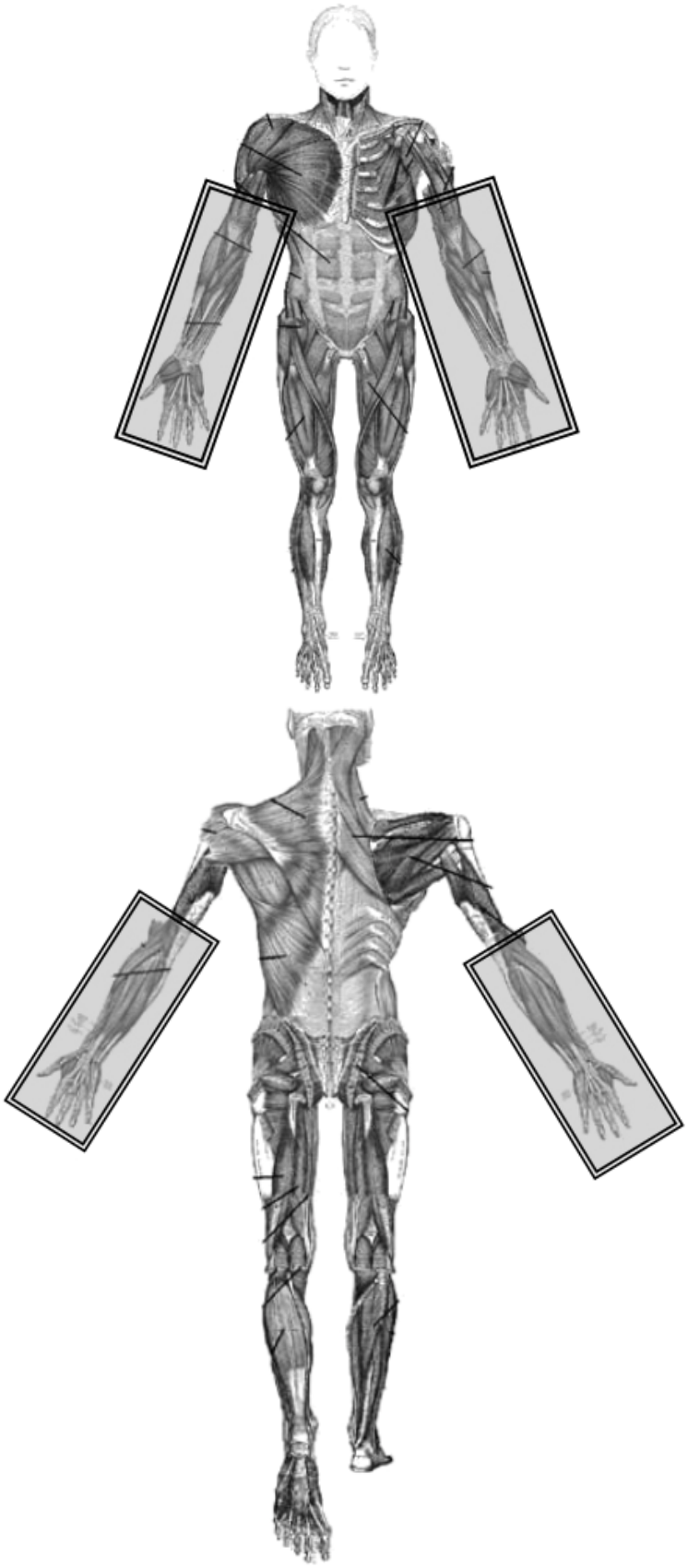
19. Are your neck, shoulder, or upper back exposed to hot temperatures when performing physical demanding tasks?

Consider the following:

19a. Organize the work schedule (e.g. employee rotation) to permit alternative periods of cold work to cool the employee.

19b. Provide shade and sunscreen protection when working outside (heat stress increases fatigue).

19c. Employees working in hot temperatures should drink enough fluids to keep hydrated (dehydration has a negative effect on muscle performance).



Elbows, forearms and hands

Ergonomics-related hazard: Lift/lower

20. Do you lift/lower objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

20a. Eliminate the need to manually lift, lower or carry objects by using mechanical means such as cranes, hoists and pallet jacks.

20b. Reduce the distance of the load from the employee by removing any obstacles between the employee and the load so that the employee can move closer to the object.

20c. Reduce the distance between the load and the employee by moving the load closer to the employee by using a mechanical aid such as a turntable.

20d. Reduce the overall weight of the load by splitting into smaller loads.

20e. Use gravity to assist in manual handling by having a lift destination lower than the lift origin.

21. Do you lift or lower objects that are difficult to grasp or hold on to?

Consider the following:

21a. Grasping can be made easier by providing or improving grip/handles on objects being handled.

21b. Use properly fitting anti-slip gloves.

22. Are your elbows forearms or hands in awkward posture (e.g. forearm rotated, wrist bent) when lifting or lowering?

Consider the following:

22a. Improve the work space layout and/or the task to ensure the employee can handle the loads without getting the elbows, forearms and wrists into an awkward position (improve the manner in which the object can be accessed).

23. Do you lift objects over a significant height?

Consider the following:

23a. Reduce the overall vertical travel distance a load has to be lifted by better arranging the starting and ending location of the lift (e.g. modify storage practices, change shelf height, etc.).

24. Do you lift/lower objects while being seated?

Consider the following:

24a. Establish work procedure to prevent lifting of loads that are heavier than 4 kg when seated (stand and use larger, stronger muscles if lifting heavier objects).

25. Do you perform lifting/lowering tasks repeatedly or frequently?

Consider the following:

25a. Tasks that are physically demanding can be better organized to ensure they are not performed continually for prolonged periods. (Use job rotation/enhancement practices and pause periods to permit muscles to recover from applying force for prolonged periods.)

Ergonomics-related factor: Carrying

26. Do you carry objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

26a. Use carts, motorized buggies, conveyors, gravity feed systems, etc. to transport load rather than carrying.

26b. Use devices/tools such as carrying handles and extension handles to assist with carrying.

26c. Organize work tasks in order to reduce the carrying distance.

26d. Housekeeping will ensure the path can be kept clear of obstructions and trip hazards when carrying items.

26e. Eliminate work practice of carrying objects up or down stairs while using both hands to hold the object. (Such work practices should not be permitted. Use one hand to hold the hand rail.)

26f. Reduce the overall weight of the load by splitting it into smaller loads (i.e. manufacturers may have different size options that can be ordered.)

Ergonomics-related factor: Push or pull

27. Do you push or pull objects?

Consider the following:

27a. Eliminate the need to manually push or pull by using mechanical devices such as conveyors, cranes or gravity fed systems.

27b. Use larger wheels to enable carts/bins to roll over minor cracks or holes on floor more easily.

27c. Pushing will be easier with better swivel arrangement of casters – 2 or 4, front or back.

27d. Use wheels/casters that are suitable for the load being transported and are compatible with the type of flooring (improve wheels/casters).

27e. Incorporate brakes or improve the existing brakes in the cart so it can be stopped safely and with less physical effort.

27f. Reduce the physical effort required for pushing by properly maintaining the cart/bin, especially the wheels and wheel bearings.

27g. Whenever possible, ensure flooring is smooth but not slippery, level, in good condition (no significant cracks or holes), and is clean (no debris).

27h. Whenever possible, carts, bins, etc should pulled rather than being pushed.

27i. Ensure load is stabilized before being pushed or pulled (e.g. boxes stacked are tilted, not secured).

27j. Use footwear that is suited for the conditions when performing pushing and pulling.

28. Are your elbows forearms or hands in awkward posture (e.g. forearm rotated, wrist bent) when pushing or pulling?

Consider the following:

28a. Use carts with vertical or height adjustable handles in order to permit grasping the handle in a neutral position (accommodate people of varying heights).

28b. Increase the space in the work place to allow room for the pushing and pulling to be initiated and maintained in a neutral/comfortable posture.

28c. Remove visual barriers to reduce twisting or bending parts of the body to see around the cart, bin, etc.

Ergonomics-related factor: Grip force

29. Do you grip or grasp objects using significant force?

Consider the following:

29a. Eliminate a manual grip by using a mechanical device such as clamps or vice grips.

29b. Select and use tools/equipment that permits a power grip and avoid a pinch grip or wide grip span whenever possible.

29c. Use tools that are lighter and designed to reduce hand torque and kickbacks.

29d. Use tools with triggers that allow for use of multiple fingers rather than one finger or thumb.

29e. Use tools that are balanced and do not require extra muscular effort to hold it in position.

29f. Reduce hand-arm vibration by selecting and using tools with vibration reducing features.

29g. Support the weight of heavy or unbalanced tools by using overhead or under-tool supports.

29h. Adding rubber or sponge type grips will facilitate easier gripping of the equipment handle and help in accommodating larger hands.

29i. Choose tools with handles that fit the hand and do not create pressure points in the palm or fingers of the hand.

29j. Improve tool inspection and maintenance so that extra force is not required when using the tool.

29k. Select tools that can be safely used by the left or right hand.

29l. Improve work procedure to keep time spent gripping objects to a minimum, and the total time spent gripping are broken into shorter periods rather than being continuous.

29m. Use suitable gloves when grasping cold or vibrating objects.

29n. Use well-fitting gloves when grasping/gripping objects.

29o. Use of friction enhanced well-fitting gloves will facilitate gripping.

30. Is awkward posture of the wrist (bent wrist) encountered when gripping tools, equipment or objects?

Consider the following:

30a. Select and use tools that have handles designed to keep the wrist in a neutral/comfortable position based on the task being performed.

30b. Further reduce the awkward posture of the wrist by paying special attention to gripping objects with a straight wrist.

Ergonomics-related factor: Repetition

31. Do you perform tasks repeatedly using the same body part without the opportunity for that body part to rest or recover, resulting in fatigue of the soft tissues in that body area?

Consider the following:

31a. Eliminate or reduce repetitive tasks by mechanization (use of power tools) or by automation.

31b. Reduce the duration of performing repetitive task through well-designed job rotation or job enhancement (adding variety to the job).

31c. Greater flexibility can be incorporated into the repetitious task, thereby enabling the employee to control/modify the pace of repetition to prevent adverse effects.

31d. Micro-breaks can be better utilized to permit adversely affected soft tissues to rest and recover when performing highly repetitious tasks.

31e. Train employees in better work techniques in order to reduce unnecessary repetition.

Ergonomics-related factor: Work postures – Awkward posture of the wrist and forearm

32. Do you perform tasks during which your wrist or forearm gets into awkward postures frequently for a prolonged period (bending of the wrist in any direction, rotation of the forearm)?

Consider the following:

32a. Use power tools or mechanical turners to reduce forearm rotations.

32b. Select and use tools that have handles designed to keep the wrist in a neutral/comfortable position.

32c. Improve work space layout and/or the task to ensure the employee can handle the loads without getting the forearm and wrists into awkward position (improve the manner in which the object can be accessed).

33. Do you use tools or perform tasks that involve contact stress on your hand(s)?

Consider the following:

33a. Use of better equipment will reduce contact stress. (e.g. use a long-handled screw driver to prevent the butt from digging into the palm.)

33b. Use equipment instead of the hand/palm as a hammer.

33c. Reduce contact stress in the palm by using suitably padded gloves when lifting heavy objects by narrow plastic strapping.

34. Do you work with your hands in a cold environment?

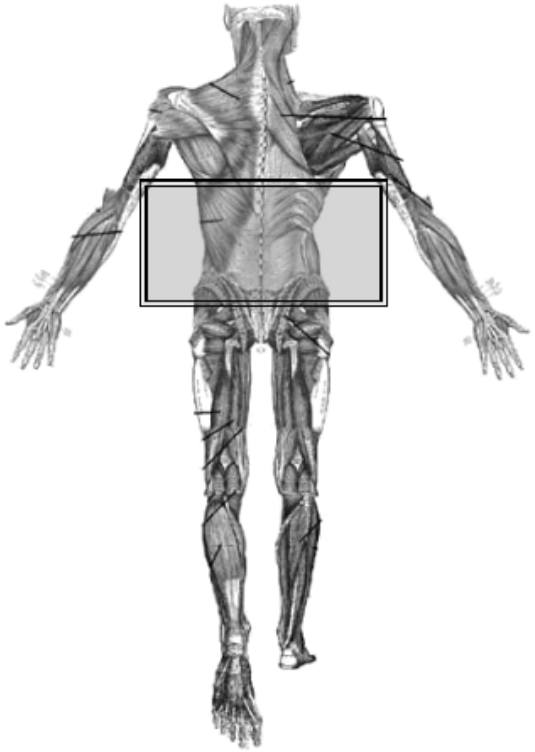
Consider the following:

34a. Use suitable work practices to keep hands warm, such as wearing suitable gloves.

34b. Store tools and equipment inside (warm environment) so that the handles are not cold.

34c. Choose tools that do not discharge cold gases or use personal protective equipment to protect the hands such as gloves or gauntlets.

34d. Organize the work schedule (e.g. employee rotation) to permit alternative periods of cold and warm work to warm or cool the employee.



Lower Back

Ergonomics-related hazard: Lift/lower

35. Do you lift/lower objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

35a. Eliminate the need to manually lift, lower or carry objects by using mechanical means such as cranes, hoists and pallet jacks.

35b. Reduce the distance of the load from the employee by removing any obstacles between the employee and the load so that the employee can move closer to the object.

35c. Reduce the distance between the load and the employee by moving the load closer to the employee by using a mechanical aid such as a turntable.

35d. Reduce the overall weight of the load by splitting it into smaller loads.

35e. Use gravity to assist in manual handling by having a lift destination lower than the lift origin.

35f. Explore and implement ways of reducing the physical demands if the physical demand of the job/task, as is, is not compatible with the employee capability.

36. Do you lift or lower objects that are difficult to grasp or hold on to?

Consider the following:

36a. Improve the ease of grasping by providing or improving grip/handles on objects being handled.

37. Do you get into an awkward posture (stooping, reaching) when lifting or lowering?

Consider the following:

37a. Avoid lifts below knee height and above shoulder height by adjusting storage shelves, etc.

37b. Use a height adjustable mechanical device, such as a scissor lift, to keep loads off the floor and above knee height.

37c. Improve the work space to ensure the employee can handle the loads without getting into a stooped or twisted position.

37d. Reposition the employee and/or the load to further reduce the reach distance away from the body to grasp the object.

38. Do you lift objects over a significant height?

Consider the following:

38a. Reduce the overall vertical travel distance a load has to be lifted by better arranging the starting and ending locations of the lift. (e.g. modify storage practices, change shelf height, etc.)

39. Do you lift/lower objects while being seated?

Consider the following:

39a. Establish work procedure to prevent lifting of loads with the lower back in a twisted position.

40. Do you perform lifting/lowering tasks repeatedly or frequently?

Consider the following:

40a. Tasks that are physically demanding can be better organized to ensure they are not performed continually for prolonged periods.

40b. Use job rotation/enhancement practices and pause periods to permit muscles to recover from applying force for prolonged periods.

Ergonomics-related factor: Carrying

41. Do you carry objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

41a. Use carts, motorized buggies, conveyors, gravity feed systems, etc. to transport load rather than carrying.

41b. Use devices/tools such as carrying handles and extension handles to assist with carrying.

41c. Organize work tasks in order to reduce the carrying distance.

41d. Housekeeping will ensure the path can be kept clear of obstructions and trip hazards when carrying items.

41e. Eliminate the work practice of carrying objects up or down stairs while using both hands to hold the object. (Such work practices should not be permitted. Use one hand to hold the hand rail.)

Ergonomics-related factor: Push or pull

42. Do you push or pull objects?

Consider the following:

42a. Eliminate the need to manually push or pull by using mechanical devices such as conveyors, cranes or gravity fed systems.

42b. Use larger wheels on carts/bins to roll over minor cracks or holes on floor more easily.

42c. Use wheels/casters that are suitable for the load being transported and are compatible with the type of flooring. (Improve wheels/casters.)

42d. Pushing will be easier with better swivel arrangement of casters – 2 or 4, front or back

42e. Incorporate brakes or improve the existing brakes in the cart so it can be stopped safely and with less physical effort.

42f. Whenever possible, carts, bins, etc. should be pulled rather than being pushed.

42g. Reduce the physical effort required for pushing by properly maintaining the cart/bin, especially the wheels and wheel bearings.

42h. Whenever possible, ensure flooring is smooth but not slippery, level, in good condition (no significant cracks or holes), and is clean (no debris).

42i. Ensure load is stabilized before being pushed or pulled. (e.g. boxes stacked are tilted, not secured).

42j. Use footwear that is suited for the conditions when performing pushing and pulling.

43. Does your lower back get into awkward postures when pushing (or pulling) objects?

Consider the following:

43a. Use carts with vertical or height adjustable handles in order to permit grasping the handle in a neutral position (accommodate people of varying heights).

43b. Increase the space in the work place to allow room for the pushing and pulling to be initiated and maintained in a neutral/comfortable posture.

43c. Remove visual barriers to reduce twisting or bending parts of the body to see around the cart, bin, etc.

Ergonomics-related factor: Repetition

44. Do you perform tasks repeatedly that require physical exertion by the lower back without the opportunity for lower back to rest or recover, resulting in fatigue?

Consider the following:

44a. Eliminate or reduce repetitive tasks by mechanization or by automation (e.g. automatic stacking machine eliminating the need to repeatedly bend and pick up the product for stacking).

44b. Reduce the duration of performing repetitive task through well-designed job rotation or job enhancement (adding variety to the job).

44c. Incorporate greater flexibility into the repetitious task, thereby enabling the employee to control/modify the pace of repetition to prevent adverse effects.

44d. Utilize micro-breaks to permit lower back to rest and recover when performing highly repetitious tasks.

44e. Train employees in better work techniques in order to reduce unnecessary repetition.

Ergonomics-related factor: Work postures – Awkward posture of the lower back

45. Do you perform tasks during which your lower back gets into awkward postures frequently for a prolonged period (bending in any direction or twisting of the trunk)?

Consider the following:

45a. Reduce forward bending of the trunk by raising the work height.

45b. Reduce forward bending of the trunk can by moving objects being accessed closer.

45c. Reduce side bending of the trunk by moving objects being accessed closer, or by moving objects to the front of the body.

45d. Reduce twisting of the truck by improving the layout of the work area.

45e. Improve seating by adjusting the chair properly to ensure adequate back support and to enable sitting in a good posture.

Ergonomics-related factor: Awkward static (fixed) work posture of the lower back

46. Do you perform tasks during which your lower back is held in a static (fixed) awkward position for prolonged periods?

Consider the following:

46a. Eliminate or reduce static/awkward posture of the lower back by improving the work place layout.

46b. Reduce the stress on the lower back from prolonged standing by improving the floor surface such as using anti-fatigue mats.

46c. Reduce standing by using a sit/stand stool.

46d. Avoid prolonged standing, especially on a hard surface, by better work procedures and by providing suitable foot rests.

46e. Use job rotation/enhancement practices and pause periods to permit muscles to recover from prolonged static/awkward posture.

46f. Avoid prolonged sitting in one position through better work procedures.

46g. Adverse impact of the static/awkward posture of the lower back can be minimized by providing adequate support to transfer the weight of the torso away from the lower back.

47. Are you exposed to whole body vibration for prolonged periods?

Consider the following:

47a. Improving seating in large vehicles to reduce vibration (e.g. install shock absorbers).

47b. Minimize vibration by keeping large tools and equipment well maintained.

47c. Organize the work schedule (e.g. employee rotation) to provide a break from the exposure to vibrations.

48. Do you perform demanding task where you (whole body) are exposed to a cold environment?

Consider the following:

48a. Organize the work schedule (e.g. employee rotation) to permit alternative periods of warm work to warm the employee.

48b. Use suitable clothing and/or provide local radiant heat.

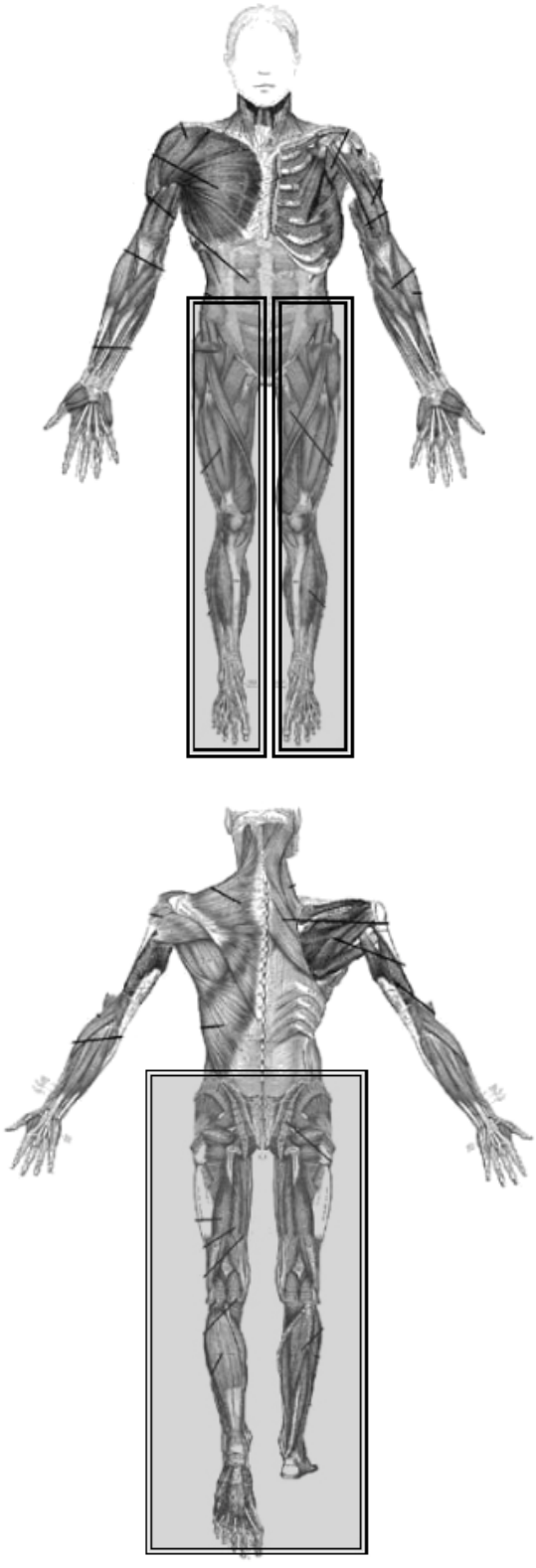
49. Do you perform physical demanding task where you (whole body) are exposed to a hot environment?

Consider the following:

49a. Organize the work schedule (e.g. employee rotation) to permit alternative periods of cold work to cool the employee.

49b. Provide shade and sunscreen protection when working outside (heat stress increases fatigue).

49c. Employees working in hot temperatures should drink enough fluids to keep hydrated (dehydration has a negative effect on muscle performance).



Hips, Knees and feet

Ergonomics-related hazard: Lift/lower

50. Do you lift/lower objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

50a. Eliminate the need to manually lift, lower or carry objects by using mechanical means such as cranes, hoists and pallet jacks.

50b. Use gravity to assist in manual handling by having a lift destination lower than the lift origin.

50c. Reduce the distance between the load and the employee by moving the load closer to the employee by using a mechanical aid such as a turntable.

50d. Reduce the overall weight by splitting it into smaller loads.

50e. Reduce the distance of the load from the employee by removing any obstacles between the employee and the load so that the employee can move closer to the object.

Ergonomics-related factor: Carrying

51. Do you carry objects that are alive or large or odd-shaped or heavy or unbalanced or that have a shifting centre of gravity, such as a container half filled with water?

Consider the following:

51a. Use carts, motorized buggies, conveyors, gravity feed systems, etc. to transport load rather than carrying.

51b. Eliminate work practice of carrying objects up or down stairs while using both hands to hold the object. (Such work practices should not be permitted. Use one hand to hold the hand rail.)

51c. Use devices/tools such as carrying handles and extension handles to assist with carrying.

51d. Housekeeping will ensure the path can be kept clear of obstructions and trip hazards when carrying items.

51e. Organize work tasks in order to reduce the carrying distance.

51f. Reduce the overall weight of the load by splitting it into smaller loads (i.e. manufacturers may have different size options that can be ordered.)

Ergonomics-related factor: Push or pull

52. Do you push or pull objects?

Consider the following:

52a. Eliminate the need to manually push or pull by using mechanical devices such as conveyors, cranes or gravity fed system.

52b. Use larger wheels to enable carts/bins to roll over minor cracks or holes on floor more easily.

52c. Use wheels/casters that are suitable for the load being transported and are compatible with the type of flooring. (Improve wheels/casters.)

52d. Pushing will be easier with better swivel arrangement of casters – 2 or 4, front or back.

52e. Incorporate brakes or improve the existing brakes in the cart so it can be stopped safely and with less physical effort.

52f. Reduce the physical effort required for pushing by properly maintaining the cart/bin, especially the wheels and wheel bearings.

52g. Whenever possible, ensure flooring is smooth but not slippery, level, in good condition (no significant cracks or holes), and is clean (no debris).

52h. Whenever possible, carts, bins, etc should be pulled rather than being pushed.

52i. Ensure load is stabilized before being pushed or pulled. (e.g. boxes stacked are tilted, not secured).

52j. Avoid twisting at the trunk when pushing/pulling.

52k. Use footwear that is suited for the conditions when performing pushing and pulling.

Ergonomics-related factor: Work postures – Awkward posture of the lower limb

53. Do you perform tasks that require you to work in a squatting or kneeling position?

Consider the following:

53a. Reduce the need to squat or kneel through better work place layout, by raising the work surface, or through job rotation.

53b. Use suitable kneepads/padding to protect the knees from contact stress when kneeling on a hard surface.

54. Are your lower limbs exposed to cold temperatures when performing physical demanding tasks?

Consider the following:

54a. Organize the work schedule (e.g. employee rotation) to permit alternative periods of cold and warm work to warm or cool the employee.

54b. Use suitable clothing and/or provide localized radiant heat.

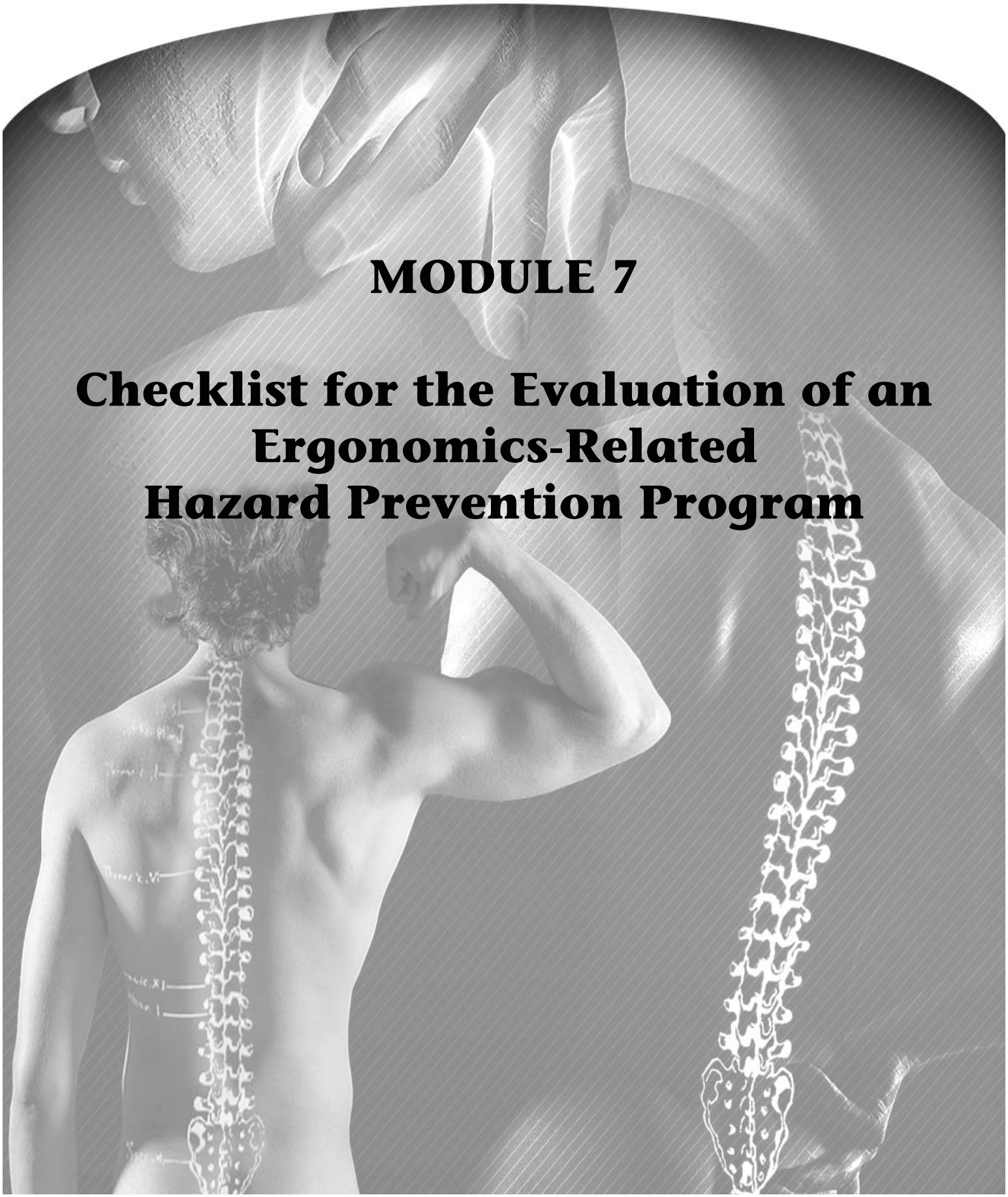
55. Are your lower limbs exposed to hot temperatures when performing physical demanding tasks?

Consider the following:

55a. Organize the work schedule (e.g. employee rotation) to permit alternative periods of cold work to cool the employee.

55b. Provide shade and sunscreen protection from the sun when working outside (heat stress increases fatigue).

55c. Employees working in hot temperatures should drink enough fluids to keep hydrated (dehydration has a negative effect on muscle performance).



MODULE 7

Checklist for the Evaluation of an Ergonomics-Related Hazard Prevention Program

Checklist for the Evaluation of an Ergonomics-Related Hazard Prevention Program

REVIEW OF YOUR FOUNDATION FOR A SUCCESSFUL ERGONOMICS-RELATED HAZARD PREVENTION PROCESS	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
1. Senior management has clearly stated their commitment to the prevention of ergonomics-related hazards (Best Practice (BP) – Can be included in *CLC II* – 125(1)*(d)(ii))*	☐	☐	☐	☐
COMMENTS:				
2. Senior management demonstrate their support for the prevention of ergonomics-related hazards by participating in training sessions (CLC II – paragraph 125(1)*(z)*), following the progress of MSI prevention efforts (COHS regs. – 19.2(1)*(b)* and *(c)*), and holding managers and supervisors accountable for taking steps to reduce exposure to ergonomics-related hazards. (CLC II – paragraph 125(1)*(z)*)	☐	☐	☐	☐
COMMENTS:				
3. Senior management considers the prevention of ergonomics-related hazards to be vital for a competitive, profitable, and healthy work place (BP)	☐	☐	☐	☐
COMMENTS:				
4. Prevention of ergonomics-related hazards policies/procedures have been created and communicated (COHS regs. – 19.1 (1) & 19.6(1))	☐	☐	☐	☐
COMMENTS:				
5. Prevention issues concerning ergonomics-related hazards have been incorporated into purchasing policies (BP – but still have to prove CLC II 125(1)*(t)*) and engineering design standards (COHS regs. – 19.5 (1))	☐	☐	☐	☐
COMMENTS:				
6. Ergonomics-related hazards prevention roles and responsibilities have been defined for all employees (i.e. managers, supervisors, workers, purchasing, HSC/H&S Reps). (CLC II – paragraph 126(1); 125(1)*(z)*;135(7) and COHS regs. – Part XIX)	☐	☐	☐	☐
COMMENTS:				
7. Workers participate in the prevention of ergonomics-related hazards in a meaningful way (COHS regs. – paragraph 19.4*(f)*; 19.5(5); and 19.6 (1)*(c)*)	☐	☐	☐	☐
COMMENTS:				

REVIEW OF YOUR FOUNDATION FOR A SUCCESSFUL ERGONOMICS-RELATED HAZARD PREVENTION PROCESS	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
8. Resources have been provided to train: - workers to recognize the signs and symptoms of ergonomics-related hazards; - managers, supervisors and workers how to recognize and respond to ergonomics-related hazards. (COHS regs. – paragraph 19.6 (1))	☐	☐	☐	☐
COMMENTS:				
9. Supervisors and occupational health staff have been trained on how to respond appropriately to reports of MSI symptoms (COHS regs. – paragraph 19.3 (1)*(e)* and 19.6(1))	☐	☐	☐	☐
10. A commitment has been made to provide the resources for necessary modifications to equipment, tools, work stations, and work methods (CLC II – paragraph 125(1)*(t)*; COHS regs. – paragraph 19.5 (1))	☐	☐	☐	☐
COMMENTS:				
11. Managers, supervisors and workers understand that there is a legal requirement to address ergonomics-related hazards at work (CLC II – paragraph 125 (1)*(t)* and *(z)*;COHS regs. part XIX)	☐	☐	☐	☐
COMMENTS:				
REVIEW YOUR PROCESS FOR UNDERSTANDING ERGONOMICS-RELATED HAZARDS	**NO**	**IN DISCUSSION/ DEVELOPMENT**	**YES, PARTIALLY/ SOMETIMES**	**YES, FULLY/ ALWAYS**
1. Managers, supervisors, and workers (including HSC/H&S Reps) have been trained/educated to understand what ergonomics-related hazards are. (COHS regs. – paragraph 19.5 (5) & Section 19.6)	☐	☐	☐	☐
COMMENTS:				
2. Company newsletters, bulletin/information boards, crew meetings, tailgate talks and the like are used to reinforce and enhance understanding of ergonomics-related hazards (BP)	☐	☐	☐	☐
COMMENTS:				
3. Managers, supervisors and workers understand how and why exposure to ergonomics-related hazards can contribute to MSIs (COHS regs. – 19.5 (5) and 19.6 (1) and (2)	☐	☐	☐	☐
COMMENTS:				

REVIEW YOUR PROCESS FOR RECOGNIZING ERGONOMICS-RELATED HAZARDS	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
1. Managers, supervisors and workers have been trained on how to recognize ergonomics-related hazards. (CLC II – paragraph 125 (1)*(z)*; COHS regs. – paragraph 19.6 (1)*(a)*)	☐	☐	☐	☐
COMMENTS:				
2. Incident/injury reports and data are reviewed to identify tasks or jobs that are causing ergonomics-related hazards (COHS regs. – paragraph 19.3 (1)*(a) & (b)*)	☐	☐	☐	☐
COMMENTS:				
3. There is a well-defined and documented process for recognizing ergonomics-related hazards (COHS regs. – paragraph 19.3 (2)*(a)*)	☐	☐	☐	☐
COMMENTS:				
4. Reports of MSIs are investigated using the same procedures/ polices as all other incidents, injuries or illnesses (COHS regs. – paragraph 15.4 (1) and section 15.7)	☐	☐	☐	☐
COMMENTS:				
5. An identification tool/checklist for ergonomics-related hazards is used to help recognize/identify MSI hazards (BP)	☐	☐	☐	☐
COMMENTS:				
6. Ergonomics-related hazards are included in all work place inspections (BP)	☐	☐	☐	☐
COMMENTS:				
7. Supervisors look for ergonomics-related hazards as part of their normal job duties (BP)	☐	☐	☐	☐
COMMENTS:				
8. Workers look for ergonomics-related hazards as part of their normal job duties (BP)	☐	☐	☐	☐
COMMENTS:				
9. Supervisors and workers look for indicators of ergonomics-related hazards (modified tools/work areas, workers rubbing or shaking limbs/joints, workers wearing braces and/or supports) (BP)	☐	☐	☐	☐
COMMENTS:				
10. Workers are encouraged to report pain/discomfort (BP)	☐	☐	☐	☐
COMMENTS:				

REVIEW YOUR PROCESS FOR RECOGNIZING ERGONOMICS-RELATED HAZARD	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
11. There is a process for workers to report ergonomics-related hazards concerns related to MSI hazards (CLC II paragraph 127.1(1) and 135(7)*(a)*; COHS regs. – paragraph 19.3(1)*(e)*)	☐	☐	☐	☐
COMMENTS:				
12. Supervisors regularly talk to workers about job demands, difficult tasks, pain/discomfort, and other issues related to ergonomics-related hazards. (BP)	☐	☐	☐	☐
COMMENTS:				
13. Surveys (e.g. feedback, discomfort, perceived exertion) are used to collect MSI related information from workers. (BP)	☐	☐	☐	☐
COMMENTS:				
14. Other data (e.g. absenteeism, overtime, production, quality, suggestions for changes) is regularly reviewed to see if there are indicators that ergonomics-related hazards may be contributing to other problems (COHS regs. – paragraph 19.3 (1)*(i)*)	☐	☐	☐	☐
COMMENTS:				
REVIEW YOUR PROCESS FOR ERGONOMICS-RELATED HAZARDS RISK ASSESSMENT	**NO**	**IN DISCUSSION/ DEVELOPMENT**	**YES, PARTIALLY/ SOMETIMES**	**YES, FULLY/ ALWAYS**
1. Ergonomics-related hazards risk assessments are done whenever there is a history of MSI claims and/or workers expressing concerns about pain/discomfort **or** when workers express concerns that there is a need to address current job demands (COHS regs. – paragraph 19.3 (1))	☐	☐	☐	☐
COMMENTS:				
2. The HSC/H&S Reps is made aware when an ergonomics-related hazard risk assessment is taking place (CLC II – paragraph 135(7)*(e)*)	☐	☐	☐	☐
COMMENTS:				
3. Members of the HSC/H&S Reps are involved in ergonomics-related hazard risk assessments (CLC II – paragraph 135(7)*(e)*)	☐	☐	☐	☐
COMMENTS:				
4. Workers who work at a job being assessed are informed that risk assessments are being conducted and the reasons why (CLC II – paragraph 125(1)*(s)*; COHS regs. – paragraph 19.6 (2)*(a)*)	☐	☐	☐	☐
COMMENTS:				
5. Appropriate workers, managers and supervisors are recruited to be involved in specific risk assessment. (BP)	☐	☐	☐	☐
COMMENTS:				

REVIEW YOUR PROCESS FOR ERGONOMICS-RELATED HAZARDS RISK ASSESSMENT	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
6. Individuals involved in ergonomics-related hazard risk assessments are provided with training on how to conduct a risk assessment (COHS regs. – paragraph 19.2 (2))	☐	☐	☐	☐
COMMENTS:				
7. The results of risk assessments are communicated to the workers who perform the job/task, the policy committee (if there is one)/HSC/H&S reps, and managers (CLC II – paragraph 125(1)*(s)*; 125(1)*(z.11)*; COHS regs. – paragraph 19.6 (2)*(a)*)	☐	☐	☐	☐
COMMENTS:				

REVIEW YOUR PROCESS FOR SIMPLE ERGONOMICS-RELATED HAZARDS RISK ASSESSMENT	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
1. Identified ergonomics-related hazards are reviewed with appropriate workers (COHS regs. – paragraph 19.6 (2)*(a)* & *(b)*)	☐	☐	☐	☐
COMMENTS:				
2. Job tasks are reviewed with appropriate workers to determine which tasks or activities are related to the identified ergonomics-related hazards (COHS regs. – section 19.4)	☐	☐	☐	☐
COMMENTS:				
3. Efforts are made to ensure that all individuals involved in a risk assessment agree on which ergonomics-related hazards are of concern and should be addressed (CLC II – paragraph 127(1); COHS regs. – section 19.3)	☐	☐	☐	☐
COMMENTS:				
4. Individuals involved in a risk assessment will brainstorm to identify different processes, equipment, materials, environment, or human elements that may be causing the ergonomics-related hazards. (COHS regs. – section 19.5)	☐	☐	☐	☐
COMMENTS:				
5. Efforts are made to ensure that all individuals involved in a risk assessment agree on the cause(s) of the ergonomics-related hazards. (CLC II – paragraph 127(1))	☐	☐	☐	☐
COMMENTS:				
6. If there is agreement on the cause(s) of the ergonomics-related hazards, efforts are made to select and implement MSI hazard controls. (COHS regs. – section 19.5)	☐	☐	☐	☐
COMMENTS:				

REVIEW YOUR PROCESS FOR SELECTING AND IMPLEMENTING ERGONOMICS-RELATED HAZARD CONTROLS	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
1. All individuals involved in projects focusing on the prevention of ergonomics-related hazards understand the different control approaches, and the pros and cons of each (COHS regs. – section 19.6)	☐	☐	☐	☐
COMMENTS:				
2. Appropriate people are involved in the selection and implementation of ergonomics-related hazards controls (BP)	☐	☐	☐	☐
COMMENTS:				
3. Ergonomics-related hazards and priorities for controls are reviewed with those involved in the selection and implementation of ergonomics-related hazards controls (COHS regs. – section 19.5(1))	☐	☐	☐	☐
COMMENTS:				
4. A variety of ergonomics-related hazards control options are identified and considered (COHS regs. – section 19.5(1))	☐	☐	☐	☐
COMMENTS:				
5. Criteria have been established to help compare control ideas. (COHS regs. – section 19.5(1))	☐	☐	☐	☐
COMMENTS:				
6. Further investigation is conducted and additional assistance is sought if there is no agreement on a preferred control option (CLC II – paragraph 127.1(1))	☐	☐	☐	☐
COMMENTS:				
7. Before implementing a preferred control option all the workers who will be affected by the control are informed about: - what changes will be made and why - when changes will be made - what the changes will mean for them. (COHS regs. – paragraph 19.6 (2))	☐	☐	☐	☐
COMMENTS:				
8. All workers who will be affected by a new ergonomics-related hazard control are trained how to use the control (COHS regs. – paragraph 19.6(2))	☐	☐	☐	☐
COMMENTS:				

NOTE: If there is no agreement on which ergonomics-related hazards need to be addressed or the causes of the identified ergonomics-related hazards, a more specific, in-depth risk assessment by a qualified person may be required.

REVIEW YOUR PROCESS FOR SELECTING AND IMPLEMENTING ERGONOMICS-RELATED HAZARD CONTROLS	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
9. The steps for installing a hazard control are reviewed to ensure that the control is installed correctly and no new hazards are introduced. (COHS regs. – paragraph 19.5 (3))	☐	☐	☐	☐
COMMENTS:				
10. Worker feedback is collected and documented after the control has been installed. (BP)	☐	☐	☐	☐
COMMENTS:				
11. After installation, workers can demonstrate that they know how to use the control. (BP)	☐	☐	☐	☐
COMMENTS:				
12. After installation, any concerns of maintenance workers are addressed immediately (COHS regs. – paragraph 19.5(3))	☐	☐	☐	☐
COMMENTS:				
13. After installation, a review is done to make sure that no new hazards have been introduced: - at the job/task in question - at job/tasks that are 'downstream' - at job/tasks that are 'upstream'. (COHS regs.- paragraph 19.5(3))	☐	☐	☐	☐
COMMENTS:				
REVIEW YOUR PROCESS FOR FOLLOWING UP ON AND EVALUATING THE SUCCESS OF IMPLEMENTED ERGONOMICS-RELATED HAZARD CONTROLS	**NO**	**IN DISCUSSION/ DEVELOPMENT**	**YES, PARTIALLY/ SOMETIMES**	**YES, FULLY/ ALWAYS**
1. People involved in projects focusing on the prevention of ergonomics-related hazards are asked to provide comments on the overall process. (BP)	☐	☐	☐	☐
COMMENTS:				
2. Positive aspects of the process are documented and communicated to those involved and to senior management. (BP)	☐	☐	☐	☐
COMMENTS:				
3. Opportunities for improvement are documented and communicated to those involved and to senior management. (BP)	☐	☐	☐	☐
COMMENTS:				
4. A process for evaluating ergonomics-related hazard controls has been developed and documented (COHS regs. – section 19.7)	☐	☐	☐	☐
COMMENTS:				

REVIEW YOUR PROCESS FOR FOLLOWING UP ON AND EVALUATING THE SUCCESS OF IMPLEMENTED ERGONOMICS-RELATED HAZARD CONTROLS	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
5. Jobs/tasks with new ergonomics-related hazard controls are re-evaluated to ensure that exposures to previously identified ergonomics-related hazards are effectively controlled (COHS regs. – paragraph 19.7(1))	☐	☐	☐	☐
COMMENTS:				
6. Workers at a job with new ergonomics-related hazard controls are asked to provide detailed feedback about the controls (after a period of time for stabilization and break-in). (BP)	☐	☐	☐	☐
COMMENTS:				
7. A process is in place to investigate and address any concerns identified (COHS regs. – paragraph 19.3(1))	☐	☐	☐	☐
COMMENTS:				
8. The results of the evaluation are communicated to: - those involved in the process - workers using the control - local and senior management. (BP if no new hazards are identified/no changes needed) (COHS regs. – paragraph 19.6 (2))	☐	☐	☐	☐
COMMENTS:				
REVIEWING YOUR PROCESS FOR COMMUNICATING RESULTS AND ACKNOWLEDGING SUCCESS	**NO**	**IN DISCUSSION/ DEVELOPMENT**	**YES, PARTIALLY/ SOMETIMES**	**YES, FULLY/ ALWAYS**
1. A process is in place to keep everyone up-to-date on the activities on the prevention of ergonomics-related hazards in the work place: - workers and supervisors - local and/or senior management - HSC/H&S reps/Policy Committee. (BP)	☐	☐	☐	☐
COMMENTS:				
2. Specific projects are discussed at crew/department meetings. (BP)	☐	☐	☐	☐
COMMENTS:				
3. Project updates on the progress of the prevention of ergonomics-related hazards and results of these projects are posted on bulletin boards, reported in the work place newsletter and posted on web pages. (BP)	☐	☐	☐	☐
COMMENTS:				

REVIEWING YOUR PROCESS FOR COMMUNICATING RESULTS AND ACKNOWLEDGING SUCCESS	NO	IN DISCUSSION/ DEVELOPMENT	YES, PARTIALLY/ SOMETIMES	YES, FULLY/ ALWAYS
4. Individuals involved in projects for the prevention of ergonomics-related hazards are acknowledged, and successful prevention efforts of ergonomics-related hazards are celebrated. (BP)	☐	☐	☐	☐
COMMENTS:				
5. Support for continuing the prevention of ergonomics-related hazards have been communicated by local and/or senior management. (BP)	☐	☐	☐	☐
COMMENTS:				
6. Special celebrations are planned when significant reductions in the risk of ergonomics-related hazards are achieved. (BP)	☐	☐	☐	☐

Develop an action plan to improve your ergonomics-related hazard prevention process. What can be done to increase the number of checks in the 'Yes, fully/always' column?