Occupational Health and Safety Council of Ontario (OHSCO)
MUSCULOSKELETAL DISORDERS PREVENTION SERIES

PART 3A:

MSD Prevention Toolbox

Getting Started

MSD
MUSCULOSKELETAL DISORDERS

PREVENTION TOOLBOX A

Disclaimer

The material contained in this Toolbox is for information and reference purposes only and not intended as legal or professional advice. The adoption and/or use of the tools, information, and/or practices described in this Toolbox may not meet the needs, requirements or obligations of individual workplaces.

The guidance in this Toolbox does not, in any way, limit or reduce the obligations that workplace parties have under Occupational Health and Safety Act (R.S.O. 1990, Chapter O.1, as amended), or any of its regulations. The Occupational Health and Safety Act (OHSA) requires employers to provide information, instruction and supervision to workers and to take every precaution reasonable in the circumstances for the protection of workers. MSD hazards that are present in the workplace must be recognized and precautions put in place to fulfill requirements under the OHSA.

Workers also have duties under the OHSA, including the duty to use equipment and protective devices provided to them to reduce their MSD risk, and to report defects and hazards of which they are aware to their supervisor. The OHSA also gives workers the right to participate, the right to know, and the right to refuse work that they believe is dangerous to either their own health and safety or that of another worker.

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PART 3A: MSD Prevention Toolbox

Getting Started

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Acknowledgements

This document, *Part 3A: MSD Prevention Toolbox – Getting Started*, is part of the Occupational Health and Safety Council of Ontario's Musculoskeletal Disorders (MSDs) Prevention Series. It was developed in partnership with the members of the Occupational Health and Safety Council of Ontario (OHSCO), with the support of the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders (CRE-MSD), and in consultation with representatives from Ontario's labour organizations, employer associations, and individual employers and workers.

Supporting organizations include:

- Construction Safety Association of Ontario
- Education Safety Association of Ontario
- Electrical & Utilities Safety Association
- Farm Safety Association
- Industrial Accident Prevention Association
- Institute for Work & Health
- Mines and Aggregates Safety and Health Association
- Municipal Health & Safety Association
- Occupational Health Clinics for Ontario Workers
- Ontario Forestry Safe Workplace Association
- Ontario Ministry of Labour
- Ontario Safety Association for Community & Healthcare
- Ontario Service Safety Alliance
- Pulp and Paper Health and Safety Association
- Transportation Health & Safety Association of Ontario
- Workers Health & Safety Centre
- Workplace Safety and Insurance Board (Ontario)

The support and participation of everyone who contributed to the development of the MSD Prevention Guideline for Ontario and its related documents is greatly appreciated

Scope of the MSD Prevention Toolbox: Getting started

Part 3A: MSD Prevention Toolbox – Getting Started is available through the partners of the Ontario health and safety system. The primary purpose of this document is to provide Ontario workplace parties with a set of basic and simple to use tools and worksheets to help them with their MSD prevention efforts.

This document is provided as a support document for the *MSD Prevention Guideline for Ontario* and the *Resource Manual for the MSD Prevention Guideline for Ontario.*

In this document you will find an overview of the MSD prevention framework, and some basic information about MSD hazards. This is followed by tools that can be used, as part of a participative process, to recognize jobs with MSD hazards, conduct a simple MSD risk assessment, and, if required, identify and select MSD hazard controls.

If you are interested in additional tools and information sheets to help you enhance and improve your MSD prevention process, please see *Part 3B: MSD Prevention Toolbox – Beyond the Basics*. The Beyond the Basics document contains a sample MSD prevention policy/procedure, a tool to help you review your MSD prevention process, some additional MSD hazard recognition tools, and an MSD risk assessment checklist.

The tools in this document are examples of tools that can be useful when implementing an MSD prevention process. It is understood that this Toolbox only presents a small sample of the many different types of tools that may be used to inform the MSD prevention process.

There is no requirement for workplaces to use all or any of the tools presented in this Toolbox. Workplaces should select the tools, whether they are the ones in this Toolbox or others, which are best able to help them with their MSD prevention efforts.

Please contact your Health and Safety Association with any questions about MSD prevention.

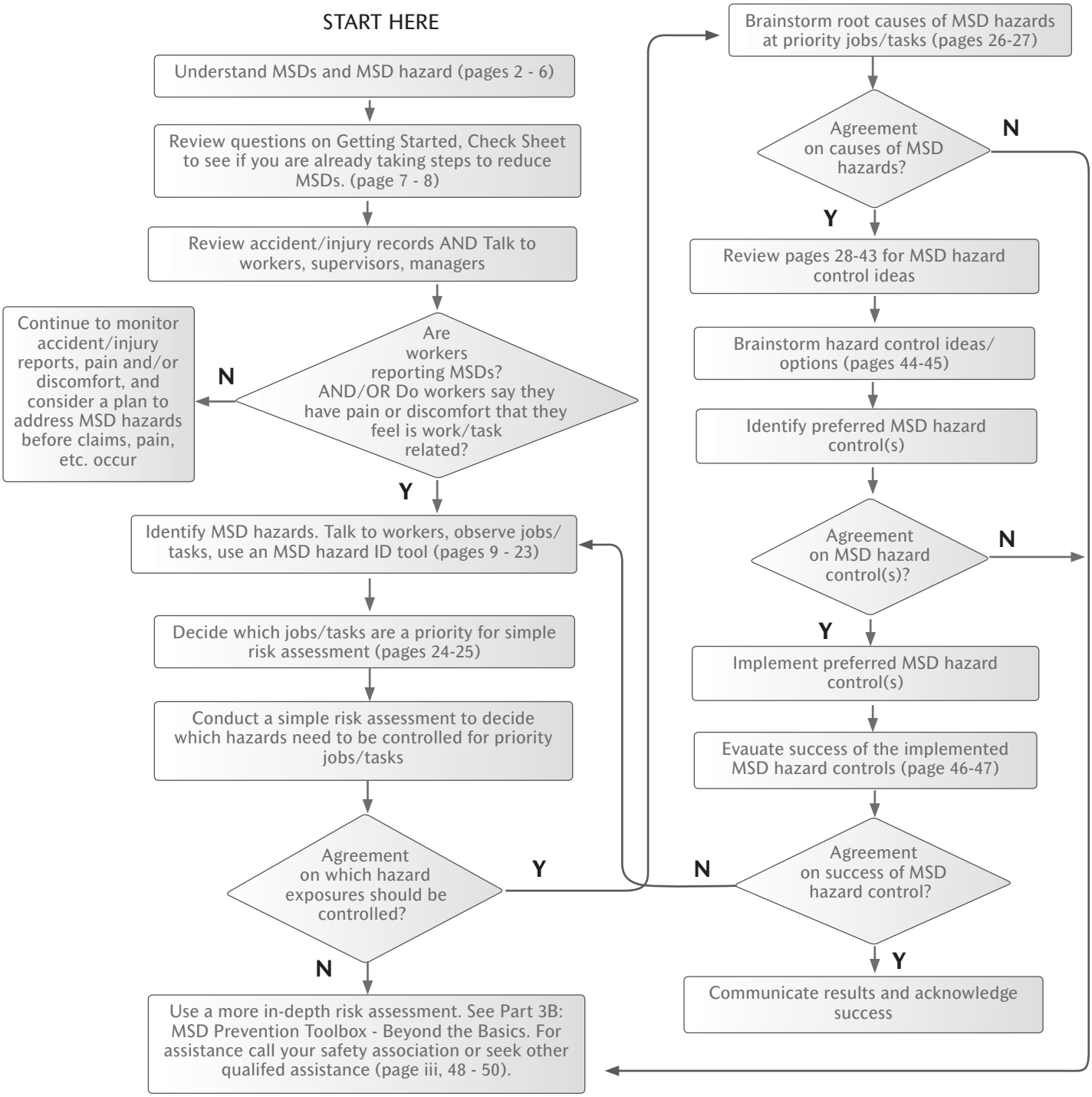
Health and Safety Associations	**Phone**	**Website**
Construction Safety Association of Ontario	(800) 781-2726	www.csao.org
Education Safety Association of Ontario	(416) 250-8005	www.esao.on.ca
Electrical & Utilities Safety Association	(905) 625-0100	www.eusa.on.ca
Farm Safety Association	(800) 361-8855	www.farmsafety.ca
Industrial Accident Prevention Association	(800) 406-4272	www.iapa.ca
Mines and Aggregates Safety and Health Association	(705) 474-7233	www.masha.on.ca
Municipal Health & Safety Association	(905) 890-2040	www.mhsao.com
Occupational Health Clinics for Ontario Workers	(416) 510-8713	www.ohcow.on.ca
Ontario Forestry Safe Workplace Association	(705) 474-7233	www.ofswa.on.ca
Ontario Safety Association for Community & Healthcare	(416) 250-7444	www.osach.ca
Ontario Service Safety Alliance	(800) 525-2468	www.ossa.com
Pulp and Paper Health and Safety Association	(705) 474-7233	www.pphsa.on.ca
Transportation Health & Safety Association of Ontario	(800) 263-5016	www.thsao.on.ca
Workers Health & Safety Centre	(416) 441-1939	www.whsc.on.ca

More information, including sector specific materials, can be found online at:
www.PreventionPractices.com/msd.html.

MSD Prevention Getting Started Flowchart

Use this flowchart to help you get started with MSD prevention. More information can be found in the MSD Prevention Guideline for Ontario and the Resource Manual for the MSD Prevention Guideline.

If you have any questions about, require assistance with, or need training on MSD prevention, call your Health and Safety Association (see page iii). If you are looking for assistance elsewhere, refer to pages 48 – 50.



Getting started with MSD prevention

What are MSDs? MSDs are injuries and disorders that affect our musculoskeletal system (i.e. muscles, tendons, ligaments, nerves, discs, and blood vessels). Work-related MSDs are those that are caused or aggravated by various hazards present in the workplace.

MSDs are strongly linked to known hazards in the workplace and, as such, they are a workplace health and safety issue. Employers are legally required to make supervisors and workers aware when MSD hazards exist, and also to take 'every precaution reasonable' to protect workers from developing an MSD.

All workplaces in Ontario, big and small, and from all sectors, need to consider MSD prevention, especially if their workers are reporting pain and discomfort, and are making MSD-related WSIB claims.

What causes MSDs?

Force | Awkward Posture | Repetition | Long Duration | Increased MSD risk

At a high enough level any one MSD hazard can cause an injury (for example: lifting a heavy box just once, even if the person is lifting properly). However the risk increases when more MSD hazards are present (example: lifting the heavy box repeatedly overhead).

Why should you invest in MSD prevention? MSDs account for 42 per cent of all lost time claims accepted by the Workplace Safety and Insurance Board (WSIB), 42 per cent of all lost time claim costs and 50 per cent of all lost time days (averages for 1996 – 2004).

MSD prevention | Saves you money | Increased productivity and quality of work | Improved health, well-being and worker satisfaction

How can I do this with limited resources and money? The process for preventing MSDs in the workplace can be simple. Any workplace can start to prevent MSDs by following the steps in the Getting Started flowchart, and by reading the next page. Also, the check sheet on page 8 can be used to compare what you are doing now against the recommended steps for getting started, and tells you where to find tools in this Toolbox that can help with your MSD prevention efforts.

For help with MSD prevention, call your Health and Safety Association (see page iii). For sector/job specific information, see www.PreventionPractices.com/msd.html

Getting started with MSD prevention

Establish a foundation for success

- All levels of management need to clearly communicate that they are committed to preventing MSDs in the workplace.
- Supervisors and workers should know that real efforts are being made to reduce exposures to MSD hazards and that resources will be allocated to make any necessary changes.

Recognize MSD hazards and related concerns

- Ask workers if they feel job/task related pain or discomfort.
- Review incident/injury records for first aid, medical aid and/or lost-time MSD claims.
- Ask workers if they can identify tasks or activities that they feel contribute to MSDs, pain or discomfort.
- Look for MSD hazards by observing jobs/tasks being performed.
- Use an MSD hazard identification tool. Remember that the tool should be filled in with input from workers who perform the job/task.

Conduct an MSD risk assessment

- Discuss identified MSD hazards with workers. Ask whether they agree that these hazards, or the activities where hazards have been identified, are contributing to their MSDs, pain and/or discomfort.
- Determine if everyone agrees on the causes of the MSD hazards.

Choose & implement hazard controls

- With the participation of workers, brainstorm ideas to control exposure to the identified hazard(s).
- Consider which options will work best. Be cautious about choosing the first solution that comes to mind or selecting a control because of claims that it is "ergonomic."

Follow up and evaluate successes of implemented controls

- Shortly after the changes have been made, talk to the workers about whether they think the control is working (less pain, working as expected, no other hazards introduced).
- Follow-up again after some time has passed to see if the control is still effective and to consider cost benefit issues.

Communicate results and acknowledge success

- Make all workers aware of successful MSD hazard controls and recognize the efforts made to prevent MSDs in the workplace.

Understand MSD Hazards

The MSD Hazard Summary Sheet (see page 6) uses pictures to describe the key MSD hazards and can be used as a handout or poster in your workplace.

Many jobs have MSD hazards – things about the job or the way the job is done that increase the risk of a worker developing an MSD. While a number of things can increase MSD risk, **the primary MSD hazards are force, fixed or awkward postures, and repetition.**

FORCE

Force refers to the amount of effort made by the muscles, and the amount of pressure on body parts as a result of different job demands. All work tasks require workers to use their muscles to exert some level of force. However, when a task requires them to exert a level of force that is too high for any particular muscle, it can damage the muscle or the related tendons, joints and other soft tissue.

This damage can occur from a single movement or action that requires the muscles to generate a very high level of force. However, more commonly, the damage results when muscles generate moderate to high levels of force repeatedly, for a long duration, and/or while the body is in an awkward posture.

Some job tasks result in high force loads on different parts of the body. For example, lifting a heavy load that is far from the body increases the load on the lower back. This can potentially damage both the spinal discs and the vertebrae.

Working with hand tools that have hard or sharp edges, i.e. resting the forearms on the hard edge of a desk, can also potentially cause damage to tendons, muscles, blood vessels and nerves under the skin. This is often referred to as contact stress (see below).

FIXED OR AWKWARD POSTURES

Posture is another name for the position of various parts of the body during any activity. For most joints, a good or "neutral" posture means that the joints are being used near the middle of their full range of motion.

The farther a joint moves towards either end of its range of motion, or the farther away from the neutral posture, the more awkward or poor the posture becomes and the more strain is put on the muscles, tendons and ligaments around the joint. For example, when arms are fully stretched out, the elbow and shoulder joints are at the end of their range of motion. If the worker pulls or lifts repeatedly in this position, there is a higher risk of injury.

REPETITION

The risk of developing an MSD increases when the same parts of the body are used repeatedly, with few breaks or chances to rest. Highly repetitive tasks can lead to fatigue, tissue damage, and, eventually, pain and discomfort. This can occur even if the level of force is low and the work postures are not very awkward.

OTHER MSD HAZARDS AND WORKPLACE FACTORS

Other MSD hazards and workplace factors that should be considered include:

- contact stress,
- local or hand/arm vibration,
- whole body vibration,
- cold temperatures,
- hot work environments,
- repeated impacts,
- work organization, and work methods.

MSD hazard summary sheet

FORCE

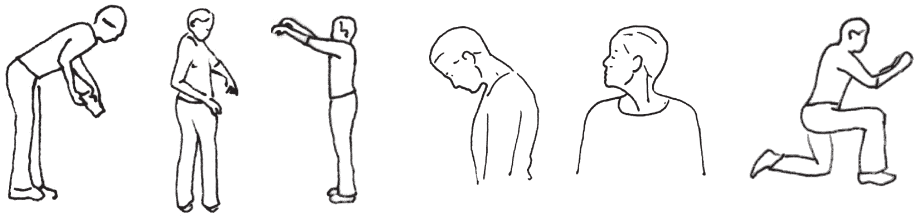
High force demands = increased MSD risk

Force-related MSD hazards can be present when lifting, pushing, pulling, carrying, gripping, using tools.

POSTURE

Awkward or static postures = increased MSD risk

Posture-related MSD hazards can be present when bending, twisting, reaching, kneeling.



REPETITION

Repetitive movements/actions = increased MSD risk

Repetition-related MSD hazards can be present when doing the same thing over and over again, with little time for rest.

OTHERS

Other MSD hazards that can increase MSD risk

Include contact stress, hand-arm vibration, whole-body vibration, hammering with hand/knee, working in cold temperatures or hot environments.

Contact stress

Hand-arm/whole-body vibration

Using hand/knee as hammer

Cold and/or hot temperatures

When MSD hazards are present, report them to your supervisor and talk about ways to reduce your risk of developing MSDs

MSD prevention: getting started checksheet

This checksheet lists some basic steps for MSD prevention. These steps are based on the MSD prevention framework discussed in the MSD Prevention Guideline for Ontario and the information provided in the Resource Manual for the MSD Prevention Guideline for Ontario. Workplaces that are just getting started with MSD prevention can use this checksheet to help them set up their MSD prevention process. Those that are already doing MSD prevention can use it to see if they are missing any of the basic elements and to help identify opportunities to strengthen their existing program.

> **Note:** Some workplaces may be using an approach to MSD prevention that is different from that suggested in the MSD Prevention Guideline for Ontario. If so, the specific steps in the checksheet may or may not reflect the practices in these workplaces. Also, some workplaces may find they require additional steps to obtain success.

MSD Prevention – Getting started checksheet

ESTABLISH A FOUNDATION FOR SUCCESS	YES	NO	WHERE TO LOOK FOR MORE INFORMATION
Managers, supervisors, and workers all know the workplace is serious about preventing MSDs	☐	☐	See the Resource Manual for the MSD Prevention Guideline for Ontario, pages 7-9, 11-15
The workplace is ready to make changes to reduce the risk of MSDs	☐	☐	
Resources are available to make any necessary changes	☐	☐	
UNDERSTAND MSDS AND MSD HAZARDS			
Managers, supervisors, and workers know what MSDs are and what hazards can cause them	☐	☐	In this document, pages 4-5, 34-41
RECOGNIZE MSD HAZARDS AND RELATED CONCERNS			
Incident/injury records are reviewed to find jobs/tasks where MSDs have been reported	☐	☐	See the Resource Manual for the MSD Prevention Guideline for Ontario, pages 32-33
Workers, supervisors and managers are asked about job/tasks that they believe contribute to any pain or discomfort	☐	☐	
Problem jobs/tasks are observed and an MSD hazard identification tool is used, with full input and participation of workers who do the jobs/tasks	☐	☐	In this document, pages 8, 10-13, 14-17, 18 -23
CONDUCT AN MSD RISK ASSESSMENT			
Problem jobs/tasks are prioritized for a simple risk assessment	☐	☐	In this document, pages 24-25
Workers are asked to identify key concerns/activities/task demands that are contributing to MSDs, pain or discomfort	☐	☐	See the Resource Manual for the MSD Prevention Guideline for Ontario, pages 37 - 40
Observations and MSD hazard identification tool results are compared to worker comments/concerns	☐	☐	
Effort is made to agree on what issues/hazards should be addressed to help reduce the risk of MSDs (agreement between observations, hazard identification tool(s), and worker comments)	☐	☐	
Effort is made to agree on why these hazards exist for this job/task	☐	☐	In this document, pages 26-27
CHOOSE AND IMPLEMENT MSD HAZARD CONTROLS			
When MSD hazard controls are needed, workers, supervisors, maintenance, and safety, personnel discuss/brainstorm ideas and options to control identified MSD hazard(s)	☐	☐	In this document, pages 28, 29-33, 34-41 and pages 42-43
Possible controls for MSD hazards are selected and reviewed	☐	☐	See the Resource Manual for the MSD Prevention Guideline for Ontario, pages 52-53
Preferred control ideas are identified and action plans are developed for implementation	☐	☐	
FOLLOW UP ON AND EVALUATE SUCCESS OF MSD HAZARD CONTROLS			
Workers are asked for their feedback on/opinions about MSD hazard controls	☐	☐	In this document, page 44-45
Workers receive training on how to use MSD controls and are using them	☐	☐	See the Resource Manual for the MSD Prevention Guideline for Ontario, pages 37 - 40
Observations and the MSD hazard identification tool results are used to help confirm that the exposure to the MSD hazard has been reduced	☐	☐	
Reviews are done to ensure that no new hazards/concerns result from the MSD hazard control(s)	☐	☐	
COMMUNICATE RESULTS AND CELEBRATE SUCCESS			
Those involved in the process are acknowledged and the workplace is told about new MSD hazard control(s)	☐	☐	See the Resource Manual for the MSD Prevention Guideline for Ontario, pages 59-61

Description of MSD hazard identification tools

Three MSD hazard identification tools are provided that can be used to recognize jobs/tasks with MSD hazards. These tools are intended to be used with input from workers who perform the job/task. Two are for general jobs/tasks and should be applicable to all work settings. The third is specifically designed to be used for looking at individuals working at computer workstations. Choose the one that you find most helpful and easiest to use.

These tools can be used to document job/task related MSD hazards and, through observation and discussions with workers, help you to better focus in on job/task factors that may be contributing to MSDs, pain and/or discomfort.

MSD Hazard Identification Tool – Option 1

This tool can be used to help recognize jobs with MSD hazards. With input from workers performing the job/task, the tool can be used to identify when hazards are present and, for some specific hazards, when the workers think that specific activities/actions are difficult, tiring, hard, heavy, or repetitive.

It provides written descriptions you may find easier to use, especially if you are just starting with your MSD prevention efforts.

MSD Hazard Identification Tool – Option 2

This option can also be used to help recognize jobs with MSD hazards. It has been designed with as few words as possible, and as such may be more useful in workplaces where language barriers exist. Option 2 provides a number of pictures related to MSD hazards. By observing the job/task being performed, and by asking workers for their opinions and feedback, the tool can be used to identify when a hazard exists and when it may be of concern because of the amount of force exerted, the postures required, the frequency of repetition and/or the length of time the workers are exposed.

This option may be quicker/easier to use if you have experience recognizing MSD hazards and talking about them with workers.

MSD Hazard Identification Tool – Computer workstation

This version of the MSD hazard identification tool can be used to identify MSD hazards for individual workers working at a computer workstation. The tool identifies a number of different workstation and equipment design/set-up issues that can increase the risk of developing an MSD. It also considers a small number of work environmental hazards. A number of possible corrective options are included for each hazard on the checklist.

> **Note:** the list of corrective options provided is limited. It is highly likely that other corrective options could be used to help control the worker's exposure to the identified MSD hazard. All changes/corrective options should be discussed with the worker(s) before being implemented.

MSD Hazard Identification Tool : Option 1

This MSD Hazard Identification Tool is provided to help you identify jobs or tasks that have MSD hazards, where workers **may** be at an increased risk of developing an MSD. This tool only identifies whether MSD hazards exist. It does **not** assess the level of risk, and this tool alone should not be used to determine if MSD hazard controls should be implemented.

IMPORTANT - READ THIS BEFORE USING THIS TOOL

- This tool is to be used to identify job/task related MSD hazards in a workplace.
- This tool needs to be used with the full participation and input of workers who perform the job/task in question. Observations alone are not enough, and it is not appropriate for the person(s) using the tool to base decisions only on what they see or think about a job.
- Other hazard identification methods such as analysis of injury, incident and first aid reports, worker concerns, and discomfort/pain reports should also be considered.
- This tool IS NOT intended to be used for:
  - Return to work assessment/evaluations
  - 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** a number of different workers performing regular work activities.
3. **Ask the workers** who perform the job/task whether they think the objects are heavy, or the task is difficult/tiring.
4. **Ask the workers** if they do a task/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 workers report 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. **Review** the contents of the MSD Hazard Identification Tool with the workers who perform the job. Ask them if there are additional task that were not captured.
8. **Prioritize the jobs/tasks for risk assessment** (**see page 25**)**.**

Also see Section 5 of the MSD Prevention Guideline for Ontario and the Resource Manual for the guideline for more information about MSD risk assessment.

See the next page for some more guidance on how and when to use this tool.

Notes:

If the physical demands related to the activity vary from day to day, due to different products/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 and, if appropriate, higher.

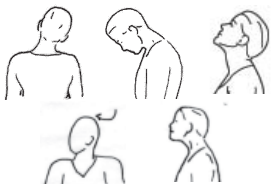
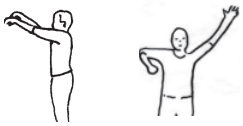
ii) If more demanding, complete the hazard identification tool. It may be that MSD hazards are only a concern for certain products/services. You should also reuse the tool when the demands are more typical.

iii) If typical, but there are times when the demands are higher, reuse the tool when the demands are higher, especially if there are no MSD hazards identified when observing typical demands.

Some MSD hazards, (e.g. lighting, aspects of work organization) are not addressed in this tool. If these or other MSD hazards exist, make note of them and ask the workers who perform the job to see if they think that these hazards are contributing to their pain/discomfort or causing them other concerns.

MSD Hazard Identification Tool: Option 1

Job/Task Information		
Job title or task:		
Date completed:		
General observations:		
MSD HAZARDS - GRIPPING		Check [✔] if required
Pinch Gripping 	• unsupported object(s)	☐
	• difficult/tiring holding or manipulating	☐
	• difficult/tiring squeezing to open/close	☐
Power Gripping 	• unsupported heavy object(s)	☐
	• difficult/tiring holding and manipulating	☐
	• difficult/tiring squeezing to open/close	☐
	Notes:	
MSD HAZARDS - FORCE		Check [✔] if required
Lifting/Lowering (consider both one and two handed lifting/lowering)	• object is heavy/difficult to lift/lower	☐
	• object is lifted/lowered repeatedly	☐
	• object is above the shoulders	☐
	• object is below the knees	☐
	• object is far away from the belly button	☐
	• loads are unstable, unbalanced, uncooperative, or unpredictable	☐
	• lifting/lowering postures are awkward (bend, twist, kneel, reach, sit)	☐
	Notes:	
Pushing/Pulling (consider one and two handed pushing/pulling. Also, consider whole body & arms/upper body only pushing/pulling)	• object is hard/difficult to push/pull	☐
	• object is pushed/pulled 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:	

MSD HAZARDS - AWKWARD/FIXED POSTURE (Do workers frequently assume these postures and/or hold them for a long time?)		Check [✔] if present
Awkward Posture 	• neck visibly bent forward (chin close to chest)	☐
	• neck visibly bent to one side (ear close to shoulder)	☐
	• neck twisted to either side/chin close to the shoulder	☐
	• neck noticeably bent back	☐
	• neck bent forward and chin out (head forward)	☐
	• hand(s) at or above the head	☐
	• elbow(s) at/or above the shoulder	☐
	• elbows/hands behind the body	☐
	• sitting or standing with the back noticeably bent forward, sideways, or twisted	☐
	• back noticeably bent backward with no support for the back	☐
	• squatting/kneeling while working	☐
	• wrist noticeably bent down or up	☐
	• wrist noticeably bent to the side (toward thumb/little finger)	☐
	• hand turned so palm faces fully up or down	☐
Fixed Posture	• sitting for long periods without standing (office work, driving, etc.)	☐
	• standing still on a hard surface for a long period of time	☐
MSD HAZARDS - REPETITION (Do workers repetitively move the same body part – with little opportunity for recovery?)		Check [✔] if present
Repetition	• performing the same neck motions repeatedly	☐
	• performing the same shoulder motions repeatedly	☐
	• performing the same elbow motions repeatedly	☐
	• performing the same wrist motions repeatedly	☐
	• performing the same hand/finger motions repeatedly	☐
	• performing intensive keyboarding	☐
	• performing intensive mousing	☐
MSD HAZARDS - OTHER		Check [✔] if present
Repeated Impacts	• using the hand or knee as a hammer	☐
Contact Stress	• tool handles dig into hand/palm	☐
	• workstation/equipment edges/products dig into body (hands, forearms, trunk, thighs)	☐
Hand-Arm Vibration	• using vibrating tools (impact wrenches, carpet strippers, chainsaws, jackhammers, scalers, riveting hammers, grinders, sanders, jig saws, jack-leg drills.)	☐
Whole-Body Vibration	• operating mobile equipment/vehicles on rough, uneven surfaces	☐
Cold/Hot Temperatures	• work environment is cold, hand/arms are exposed to cold air	☐
	• work environment is hot/humid	☐

MSD Hazard Identification Tool: Option 2

This MSD Hazard Identification Tool is provided to help you identify jobs or tasks that have MSD hazards, where workers **may** be at an increased risk of developing an MSD. This tool only identifies whether MSD hazards exist. It does **not** assess the level of risk, and this tool alone should not be used to determine if MSD hazard controls should be implemented.

IMPORTANT - READ THIS BEFORE USING THIS TOOL

- This tool is to be used to identify job/task related MSD hazards in a workplace.
- This tool needs to be used with the full participation and input of workers who perform the job/task in question. Observations alone are not enough, and it is not appropriate for the person(s) using the tool to base decisions only on what they see or think about a job.
- Other hazard identification methods such as analysis of injury, incident and first aid reports, worker concerns, and discomfort/pain reports should also be considered.
- This tool IS NOT intended to be used for:
  - Return to work assessment/evaluations
  - 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** a number of different workers performing regular work activities.
3. **Look** at the pictures on the hazard identification tool. Do any of the postures, tasks, or other hazards illustrated by the pictures exist for the job/task being observed?
4. **Ask** the workers who do the job/task if they think that any of the identified hazards also have force, repetition, posture, and/or time concerns.
5. **Mark that a hazard exists only if it is clear**, by observation and/or from worker comments, that:

   a. For awkward/static postures:

   1. Workers must exert a force (difficult, tiring, heavy) with the body part that is in an awkward posture (check the F box).
   2. Workers adopt this posture repeatedly (check the R box).
   3. Workers adopt this posture and hold it for a long time (check the T box).

   b. For manual material handling:

   1. The task is difficult or tiring, the object lifted or carried is heavy, and/or the pushing/pulling force is of concern (check the F box).
   2. The task is done repeatedly (check the R box).

3. The task requires the worker to adopt an awkward posture (check the P box).
4. The task is done for a long time without a break/change of activity (check the T box).

c. For gripping:

1. The task is difficult or tiring, and/or the amount of grip force required is of concern (check the F box).
2. The task is done repeatedly (check the R box).
3. The task requires the worker to adopt an awkward posture (check the P box).
4. The task is done for a long time without a break/change of activity (check the T box).

d. For contact stress:

1. The force level of the contact stress is noted as a concern (check the F box).
2. Workers are exposed to contact stress repeatedly (check the R box).
3. The contact stress lasts for a long time (check the T box).

e. For sitting/standing:

1. Sitting/standing postures are poor (check the P box).
2. Workers sit/stand for a long time without a change in posture (check the T box).

f. For keyboarding/mousing:

1. Workers visibly 'pound' the keys or grip the mouse (check the F box).
2. The mouse is used repeatedly (check the R box).
3. Wrist, arm, and/or shoulder postures are poor when keyboarding or using the mouse (check the P box).
4. Workers use the keyboard and/or mouse for a long time without a change in activity (check the T box).

g. For using the knee or hand as a hammer:

1. Force levels on the knee or hand are noted as a concern (check the F box).
2. The knee and/or hand is used as a hammer repeatedly (check the R box).
3. The knee and/or hand is used as a hammer for a long time (check the T box).

h. For hot or cold:

1. The worker or parts of the worker's body are exposed to temperatures of concern (too hot, too cold) (check the F box – to represent exposure to hot or cold temperature levels).
2. Workers are exposed to hot/cold temperatures repeatedly (check the R box).
3. Workers are exposed to hot/cold temperatures for a long time (check the T box).

i. For hand-arm or whole-body vibration:

1. The levels of vibration are noted as a concern (check the F box).
2. Workers are exposed to vibration repeatedly (check the R box).
3. The postures adopted are awkward while being exposed to vibration (check the P box).
4. Workers are exposed to vibration for a long time (check the T box).

6. **Write** notes for any identified hazard to clarify the task or activity where it occurs.
7. **Review** the contents of the MSD Hazard Identification Tool with the workers who perform the job. Ask them if there are additional tasks that were not captured.
8. **Prioritize** the jobs/tasks for risk assessment (see page 25).
    a. Also see Section 5 of the MSD Prevention Guideline for Ontario and the Resource Manual for the Guideline for more information about MSD risk assessment.

See notes on bottom of the second page of the tool for guidance on how to use this tool when the task demands vary from day to day, due to different products/services being produced or provided.

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

MSD Hazard Identification Tool: Option 2


F

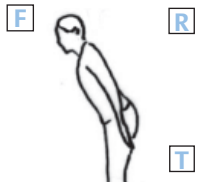
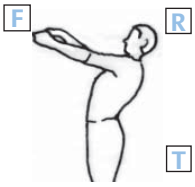
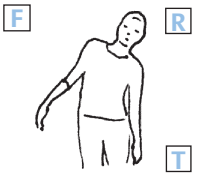
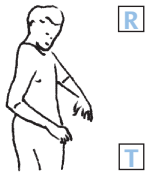
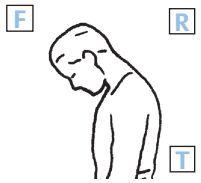
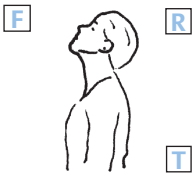
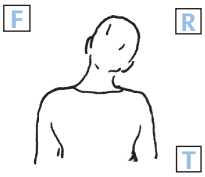
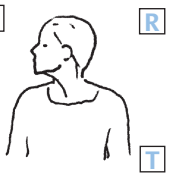
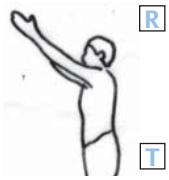
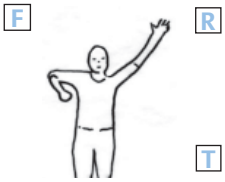
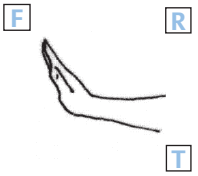
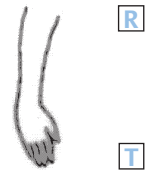
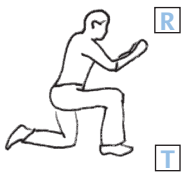
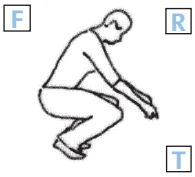
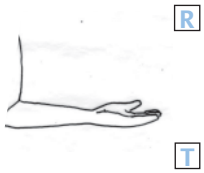
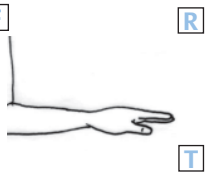

P


R


T

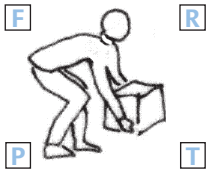
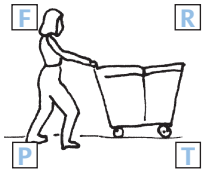
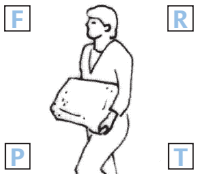
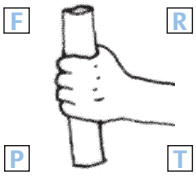
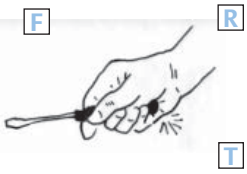
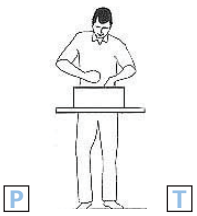
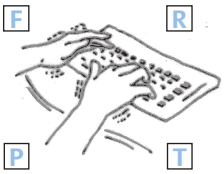
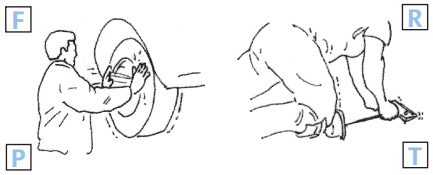
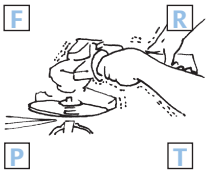
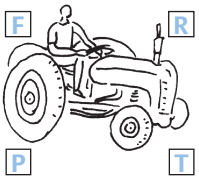
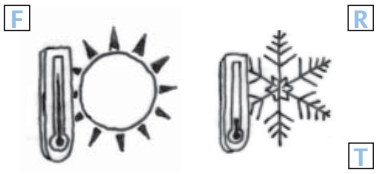
Tips for completing this section

- Observe work and talk to workers to determine if any of the awkward/static postures are present
- If an awkward posture is identified, check the appropriate box beside its picture:
  - "F" if force is applied while in the awkward posture and the level of force is noted as a concern
  - "R" if same awkward posture must be performed repeatedly by the workers
  - "T" if the task must be performed for a long period of time without a change in posture/ activity

Job/Task Information				
Job title or task:				
Date completed:				
Awkward/Static Postures				**Notes**
 Back bent foward	 Bent backward	 Bent to side	 Twisting	
 Neck bent forward	 Neck bent backards	 Neck bent to side	 Neck rotated	
 Hands or elbows above shoulders	 Arms out to the side	 Wrist bent up or down	 Wrist bent to either side	
 Kneeling	 Squatting	 Palm up	 Palm down	

Tips for Completing this Page

- Observe work and talk to workers to determine if any of the activities/issues are present.
  - If present, check the appropriate box beside its picture (as applicable):
    - "F" if forces being exerted/weights handled are noted as a concern
    - "R" if the activity is performed repeatedly by the workers or workers are repeatedly exposed
    - "P" if the workers adopt awkward postures during the activity or exposure
    - "T" if the activity is performed for a long time or workers are exposed for a long time

Manual Material Handling			Notes
 Lifting	 Pushing/Pulling	 Carrying	
Gripping			
 Pinch Grip	 Grip	 Contact stress	
Other			
 Sitting	 Standing	 Keyboarding/Mousing	 Using knee or hand as a hammer
 Hand-arm vibration	 Whole-body vibration	 Hot/Cold temperatures	

Notes:

If the activity-related physical demands required vary from day to day, due to different products/services being produced or provided, ask workers if the activity being observed is 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 MSD hazards are only a concern for certain products/services. 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 MSD hazards identified when observing typical demands.

MSD Hazard Identification Tool

Computer workstation

This MSD Hazard Identification Tool is provided to help you identify MSD 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 MSD. This tool **only** identifies whether MSD hazards exist. It does not assess the level of risk, and this tool alone should **not** be used to determine if MSD hazard controls should be implemented.

IMPORTANT - READ THIS BEFORE USING THIS TOOL

- This tool is to be used to identify job/task related MSD hazards for individual workers performing computer based jobs/tasks.
- This tool needs to be used with the full participation and input of the worker who works at the computer workstation where the job/task is performed. Observations alone are not enough, and it is not appropriate for the person(s) using the tool to base decisions only on what they see or think about a job.
- Other hazard identification methods such as analysis of injury, incident and first aid reports, worker concerns, and discomfort/pain reports should also be considered.
- This tool IS NOT intended to be used for:
  - Return to work assessment/evaluations
  - 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 MSD 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** MSD 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 MSD hazards or on any further actions required.

See the next page for some more guidance on how and when to use this tool.

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 MSD 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 MSD hazards identified when observing typical demands.

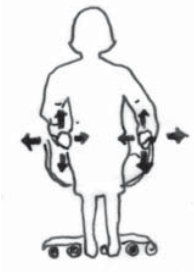
Some MSD hazards, (e.g. aspects of work organization, work practices) are not addressed in this tool. If these or other MSD hazards exist, make note of them and plan to assess whether they contribute to the MSD risk for individual workers.

MSD Hazard Identification Tool: 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

MSD HAZARDS		Is the hazard present? Yes	Is the hazard present? No	CORRECTIVE OPTIONS Potential steps to reduce or eliminate the risk associated with the MSD 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.
	6. Armrests provide inadequate forearm support when keying or mousing. Hunched shoulders - armrests too high; leaning 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.

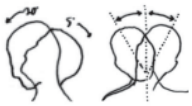
Notes:

B: Keyboard and mouse or other input device

MSD HAZARDS		Is the hazard present? Yes	Is the hazard present? No	CORRECTIVE OPTIONS Potential steps to reduce or eliminate the risk associated with the MSD hazard.
	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.

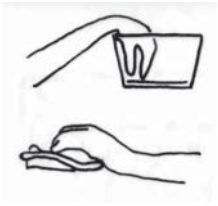
Notes:

C. Monitor and Workstation

MSD HAZARDS		Is the hazard present? Yes	Is the hazard present? No	CORRECTIVE OPTIONS Potential steps to reduce or eliminate the risk associated with the MSD hazard.
	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).

Notes:

C. Monitor and workstation (cont'd)

POTENTIAL MSD HAZARDS		Is the hazard present? Yes	Is the hazard present? No	CORRECTIVE OPTIONS Potential steps to reduce or eliminate the risk associated with the MSD hazard.
	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

POTENTIAL MSD HAZARDS		Is the hazard present? Yes	Is the hazard present? No	CORRECTIVE OPTIONS Potential steps to reduce or eliminate the risk associated with the MSD hazard.
	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:

Prioritizing jobs and tasks for simple risk assessment

This tool is designed to help workplaces prioritize their hazard identification findings to help determine the priority level for further action. This step can help workplaces determine which findings are of extremely high priority to address and which may require no further action except to continually monitor for any changes in status.

This table shows you how you can prioritize jobs and tasks for simple risk assessment by considering MSD claims that have been reported for the job/task, if workers performing the job/task are reporting musculoskeletal discomfort or other concerns, and whether or not MSD hazards have been recognized for the job/task.

MSDs REPORTED[1]		WORKER DISCOMFORT/OTHER CONCERNS		MSD HAZARD(S) IDENTIFIED		PRIORITY LEVEL
YES	NO	YES	NO	YES	NO	
✔		✔		✔		Very high priority
✔			✔	✔		
✔		✔			✔	Very high priority[2]
✔			✔		✔	High priority[2]
	✔	✔		✔		High priority
	✔	✔			✔	Moderate[2]
	✔		✔	✔		Low priority
	✔		✔		✔	No risk assessment required – continue to monitor. Consider a proactive risk assessment to prevent future MSDs

[1] **MSDs reported** should include lost time and non-lost time (medical/first aid) claims

[2] **When there are MSD claims and/or reports of pain or discomfort**, but no MSD hazards have been identified, after talking with workers and using an MSD Hazard Identification Tool, it is suggested that you seek help from someone who is qualified to help you with your MSD prevention efforts (see pages 48 - 50).

In addition to considering the factors in the above table, other considerations that may help you prioritize your jobs for risk assessment include:

- severity of MSDs or MSD concerns, or MSD hazards,
- number of people reporting an MSD or MSD concern,
- number of people who do the job or task,
- percentage of people who do the job or task who have reported an MSD or MSD concern,
- number of MSD hazards present,
- number of people who do the job or task,
- frequency with which the job or task is performed,
- length for which the job or task is performed,
- reports or concerns by supervisors or the JHSC,
- high absenteeism, overtime or worker dissatisfaction,
- productivity and/or quality problems.

Worksheet to prioritize jobs or tasks for simple risk assessment

TASK/JOB	MSDs REPORTED		WORKER DISCOMFORT / OTHER CONCERNS		MSD HAZARD(S) IDENTIFIED		PRIORITY LEVEL
	YES	NO	YES	NO	YES	NO	

Assessing MSD hazards: Determining Root Cause Worksheet

Once all workers have agreed on the MSD hazards, use this tool to help guide brainstorming sessions with workers on determining the root causes of the identified MSD hazards. The tool helps workers consider how different aspects of the job can cause an MSD hazard. Remember, MSD hazards can be caused by a number of different factors, so it is important to consider different possible causes AND not jump to conclusions or take what seems to be, at first, the most obvious reason.

To provide some structure to the discussion, use the five categories of possible causes for any health and safety hazard – process, equipment, materials, environment and human (PEMEH). Follow the steps below to identify the root cause of the hazard:

Step 1: Write down the specific MSD hazard you are concerned about to help focus the group. Write it on the top of the worksheet.

Step 2: Ask why the MSD hazard exists – write the answer in a box on the worksheet for the appropriate category.

Step 3: For each answer, ask why again, and continue to do this until the group reaches agreement that the root cause has been identified (it usually takes less than 'the five whys' to get to this point).

The following are examples of the kind of points to consider for each category:

PROCESS:

- length of time allotted to tasks
- machine-paced tasks
- duration of task
- variety of tasks
- production/quality standards
- communication between staff within the department and outside the department

EQUIPMENT:

- working height
- location of controls and/or displays
- operation of the controls
- mobility
- location
- association with other equipment
- insufficient adjustability
- maintenance

MATERIALS:

- packaging
- weight and dimensions
- storage location
- quality

ENVIRONMENT:

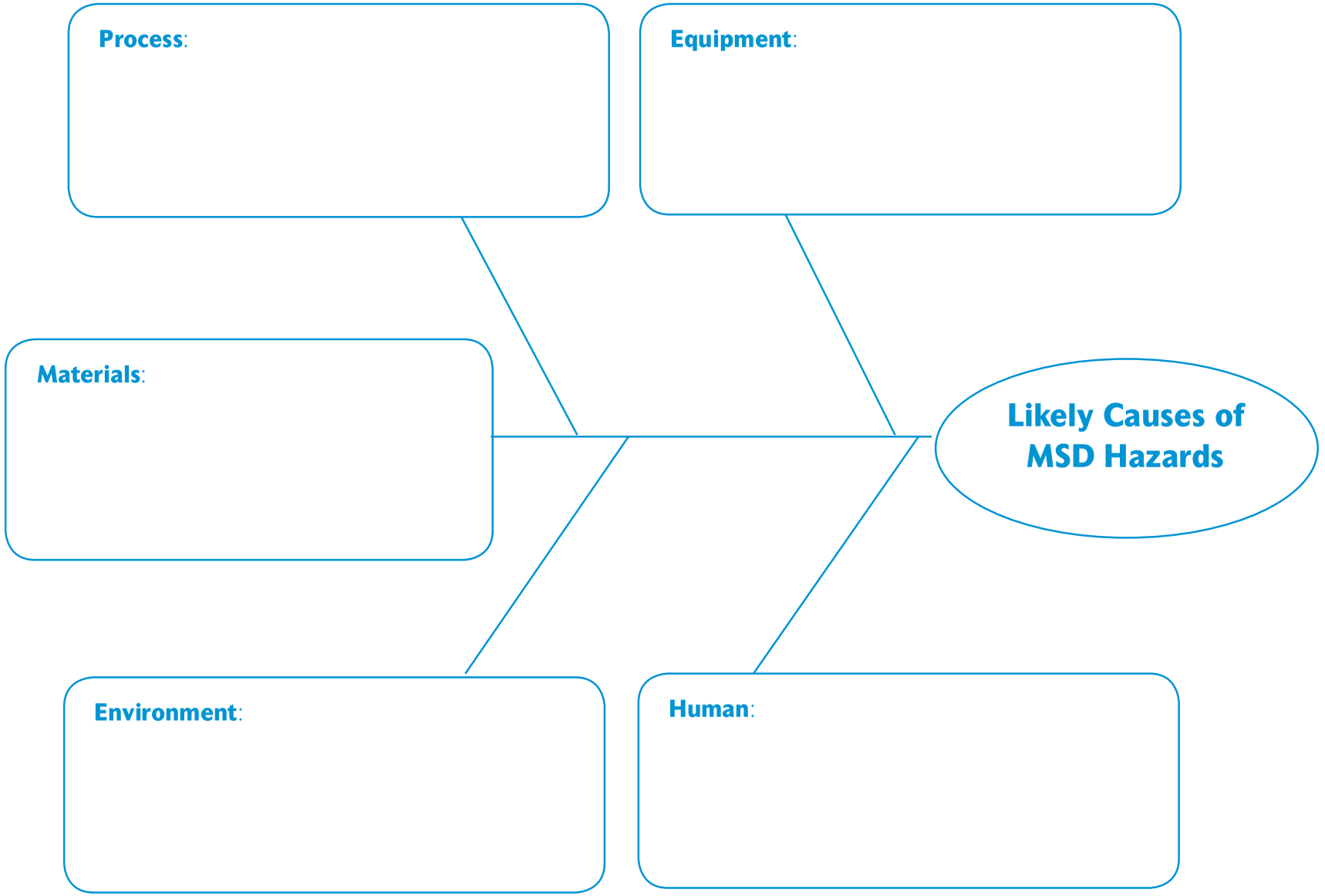
- working space
- overcrowding
- temperature
- flooring
- housekeeping

HUMAN:

- insufficient training on techniques/processes
- insufficient supervision /coaching
- production pressures and demands
- inappropriate response to reports of MSD related concerns
- differences in work methods/techniques
- inconsistent use of equipment/controls that help reduce MSD risk

Assessing MSD hazards: Determining Root Cause Worksheet

If agreement on the root cause(s) is not reached, an in-depth risk assessment may be required. See *Part 3B: MSD Prevention Toolbox – Beyond the Basics*



Questions to consider when selecting MSD hazard controls

When implementing solutions to eliminate/control MSD hazards, there is often more than one option to consider. The following are some points to consider before choosing your preferred control option:

1. What experiences have others had with the solution?
2. How well does each option control the MSD hazard – for example, it is usually best to engineer out the hazard as opposed to controlling exposure to it?
3. What disruption would be caused by the implementation process?
4. What training is required?
5. Are there impacts on productivity or quality of service?
6. What feedback do employees have – what option would they prefer?
7. What impacts would the solution have either upstream or downstream in the process?
8. Will any new hazards be created?
9. What maintenance requirements will there be?
10. What is the cost?
11. Are there non-monetary benefits to one option over another?
12. How will you evaluate the success of the implementation?

Tips for eliminating and controlling MSD hazards

Force

Gripping tools/equipment

- Provide tools that allow workers to grip the tool using a power grip.
- Eliminate the use of pinch or key grips as much as possible.
- Choose tools that have triggers that allow for the use of multiple fingers rather than one finger or a thumb.
- Choose tools that can be used with the wrist straight.
- Choose tools with vibration-reducing features.
- 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, cushioned hand grip. rather than one with hard ridges that space the fingers.
- Provide rubber or sponge-type grips on tool handles.
- Provide tools that can be safely used by either left-handed or right-handed workers.
- Maintain tools regularly.
- Inspect tools regularly. Ensure worn or damaged tools are fixed or replaced.

Pushing and pulling

- Provide 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 they are easier to roll over cracks or holes.
- Ensure that wheels/casters that are suitable for the load being transported and are compatible with the type of flooring.
- Determine the most suitable swivel arrangement of casters – two or four, 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.
- Ensure the flooring is level, smooth and in good condition.
- Ensure workers can see over the top of the cart.
- Push rather than pull carts.
- Maintain carts, especially wheels and wheel bearings.
- Provide brakes on carts where practical.

Heavy, frequent or awkward lifting

- Use mechanical assists to lift/lower loads - such as hoists, pallet trucks, pump trucks, ladder hoists, gin poles, daisy chains, cranes, or chain falls.
- Use lifting devices designed for specific tasks, e.g. lifting/moving people, lifting/moving animals.
- Move objects as close to the body as possible before lifting them – use turntables to bring loads close.
- Ensure there are no obstacles between the worker and the load being lifted.
- Provide height-adjustable pallet trucks/scissor lifts to keep loads off the floor and so that loads can be handled with the hands above knee height.
- Organize the starting and ending location of the lifts to limit the overall vertical travel distance a load has to be lifted.
- Avoid lifts below knuckle level and above shoulder level – limit use of high and low shelves.
- Avoid lifting loads that are heavier than four kg when seated – stand and use larger, stronger muscles.
- Improve grips/handles on objects being lifted.
- Split the overall weight of a load into smaller loads.
- Avoid uneven, unbalanced loads.
- Use gravity as an assist whenever possible (lower rather than lift).
- Use carts, motorized buggies, conveyors, gravity feed rollers to transport loads rather than carrying them.
- Provide tools/devices to help with carrying tasks - 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 hand rail.
- Improve housekeeping to prevent slips, trips and falls.
- Require suppliers to include the weight on all objects/packages that are manually handled.
- Use shoulder pads when carrying loads on shoulders.

Fixed or awkward postures

- Provide height adjustability in a standing workstation.
- Establish a suitable working height depending on the type of work being done (i.e. precision, light or heavy work).
- Provide sit/stand stools at standing workstations and for tasks with prolonged standing.
- Provide height adjustable chairs.
- Utilize lift tables to keep the position the objects close to the worker.
- Utilize tilt tables to angle objects close to workers.
- Utilize rotating platforms to minimize reaching for objects.

- Provide self-elevating platforms in deep bins to keep items easily accessible and near the top of the bin.
- Provide false bottoms in deep sinks or containers.
- Limit shelf heights to between knee and shoulder height.
- Provide foot rests at standing workstations.
- Ensure the type of flooring will minimize shock absorption to the worker's body.
- Provide anti-fatigue matting for standing work areas with hard floor surfaces.
- Use devices such as lifts, duct jacks, scissor lifts, and extension poles or stands for operating tools overhead.
- Use adjustable scaffolds, aerial and other work platforms to raise the whole body closer to work.
- Place materials used often at appropriate height and less frequently used materials in less desirable locations.
- Use tables, benches, or stands to bring work to waist height.

Repetition

- Implement well-designed job rotation.
- Add different tasks to the job to increase the variety of activities.
- Include flexibility in the job so the worker can control pace of work.
- Use a work/rest schedule that allows for frequent changes of activity.
- Encourage employees to take micro-breaks.
- Mechanize the task where necessary.

Repeated impacts

- Look for tools/equipment that will eliminate the need for repeated impacts:

  - use rubber mallets/other tools instead of the hand, and

  - use power stretchers for carpet installations.
- Provide workers with well-designed padded gloves/knee pads.
- Change fittings/parts/equipment to minimize the forces used with repeated impacts.
- Limit the time duration required for repeated impacts.

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 work area to prevent sharp edges from digging into skin (e.g. cover sharp or metal edges with padding).
- Use personal protective equipment (e.g. use knee pads while kneeling; use padded gloves when lifting heavy objects by narrow plastic strapping).
- Improve or change work practice to reduce resting or leaning against sharp edges.

Local or hand-arm vibration

- Use vibration-absorbing padding on grips or handles.
- Provide employees with anti-vibration gloves.
- Keep tools well maintained/sharp to reduce vibration.
- Source various suppliers who can supply tools with lower levels of vibration.
- Reduce total exposure to vibration by alternating between tasks that use vibrating tools and tasks with non-powered tools or by incorporating job rotation between tasks.
- Use cutting or powerhead vibration dampening devices.
- Use equipment that includes vibration-dampening rubber grommets on controls and control box.

Whole-body vibration

- Avoid sitting or standing for prolonged periods on vibrating surface if practicable (e.g. avoid working on catwalks attached to vibrating machinery).
- Isolate the source of vibration from the rest of the work space to prevent transmission of vibration to the sitting or standing area (e.g. isolation of truck cabs from diesel engine vibration).
- Train and instruct operators and drivers to:
  - adjust the driver weight setting on suspension seats,
  - adjust the seat position and controls correctly to provide good lines of sight and support,
  - adjust the vehicle speed to suit the ground conditions to avoid excessive bumping and jolting,
  - steer, brake, accelerate, shift gears and operate attached equipment smoothly, and
  - follow worksite routes to avoid traveling over rough, uneven or poor surfaces.
- Choose machinery suitable for the job:
  - select vehicles and machines with the appropriate size, power and capacity for the work and the ground conditions.
- Maintain machinery and roadways:
  - make sure that paved surfaces or site roadways are well maintained (e.g. potholes filled in, ridges leveled, rubble removed),
  - maintain vehicle suspension systems correctly (e.g. cab, tire pressures, seat suspension),
  - replace solid tires on machines such as forklift trucks, sweepers and floor scrubbers before they reach their wear limits, and
  - obtain appropriate advice (from seat manufacturers, machine manufacturers and/or vibration specialists) when replacing a vehicle seat. Seats need to be carefully matched to the vehicle to avoid making vibration exposure worse.

- Other measures
  - Introduce work schedules to avoid long periods of exposure in a single day and allow for breaks where possible.
  - Avoid high levels of vibration and/or prolonged exposure for older employees, people with back problems, young people and pregnant women.

Cold temperatures

- Ensure workers wear high-friction, well-fitting gloves.
- Ensure that workers 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 (worker rotation) and allow workers to take rest breaks in warm areas.
- Avoid having workers use tools that discharge cold gases over the hand.
- Provide local source heating (portable heaters) for workers.
- Educate workers about the adverse effects of cold and its influence on MSDs.
- Encourage workers to stay well hydrated.

Hot work environments

- Provide alternating periods of cool/shaded and warm work (worker rotation) and allow workers to take rest breaks in cool areas.
- Provide local source cooling (portable spot chillers) for workers.
- Educate workers about the adverse effects of heat and its influence on MSDs.
- Encourage workers to stay well hydrated.

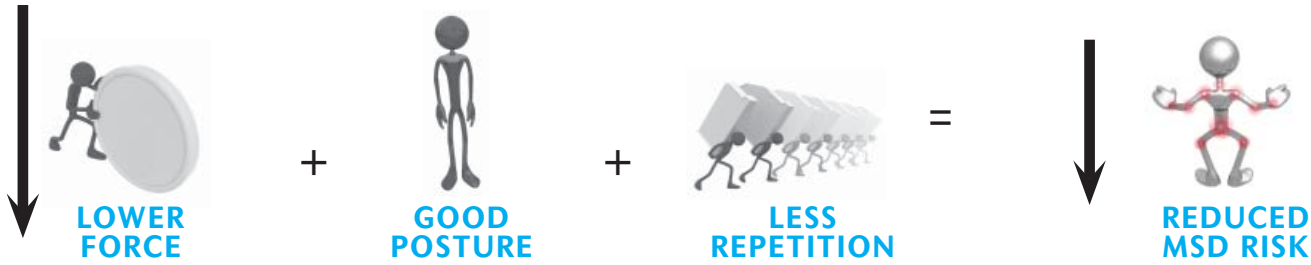
Work organization

- 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 that the worker does not have to perform similar repetitious tasks throughout the full shift. Provide the worker 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.

Work methods

- Evaluate jobs to determine whether work methods are compatible with worker 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 with what workers are actually doing.

MSD Hazards & Solutions: **Force**



LIFTING/LOWERING

HAZARDS


Lifting from the floor


Overhead lifting


Lifting out of a bin

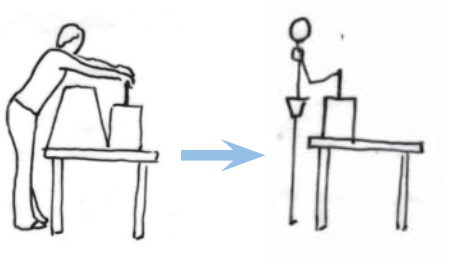

Lifting while reaching

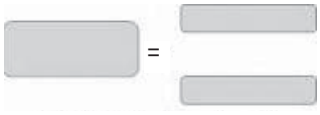

Lifting heavy loads

SOLUTIONS

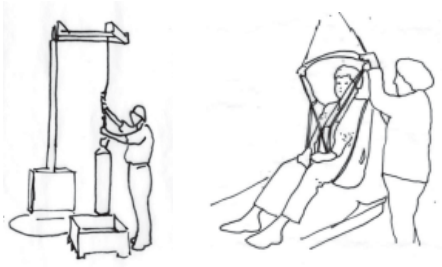

Store materials off the floor


Use lift/tilt devices


Remove obstacles between worker and load


Split heavier loads to reduce risk


Keep lifts below shoulders and above knees

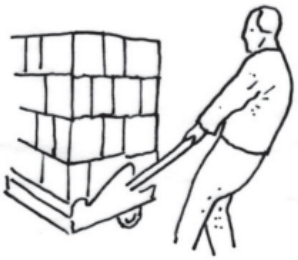

Use a well-designed lifting device

MSD Hazards & Solutions: **Force**

PUSHING/PULLING/CARRYING

HAZARDS

Difficult pushing



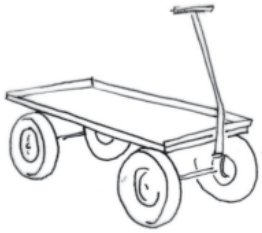
Difficult pulling

Carrying heavy loads

SOLUTIONS

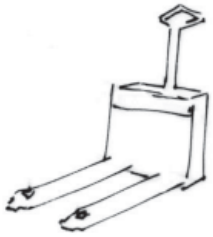
Use well-designed carts

Use a powered pusher



Use big wheels on carts/bins

Use dollies/carts



Use powered pallet jack

Use conveyors to move materials

MSD Hazards & Solutions: **Force**

GRIPPING

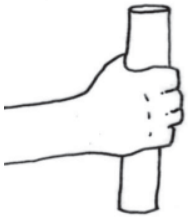
HAZARDS

Difficult power gripping

Difficult pinch gripping

Difficult pinch gripping

SOLUTIONS



Use good power grips

Use boxes with good handles

Use tools/equipment with good hand grips

Use tool balancers for heavier hand tools

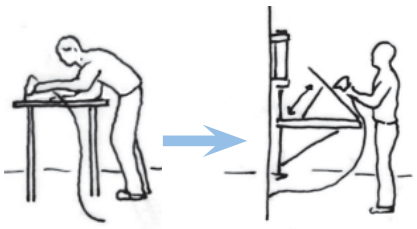
MSD Hazards & Solutions: **Posture**

BACK/TRUNK POSTURES

HAZARDS

Bending forward | Bending backward | Bending to one side | Twisting

SOLUTIONS



Angle work surface up

Adjust work surface height

ARM/SHOULDER POSTURES

HAZARDS

Hands above shoulder | Elbows/arms away from body | Arms behind the body

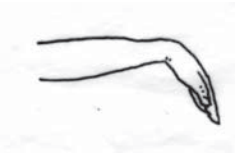
SOLUTIONS

Use long handle extensions | Use lift tables with turntables on them | Keep lifts below shoulders and above knees | Use adjustable height work platforms

MSD Hazards & Solutions: **Posture**

HAND/WRIST POSTURES

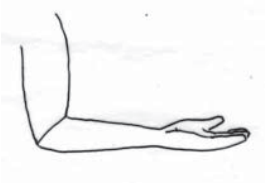
HAZARDS



Bending the wrist down

Bending the wrist up

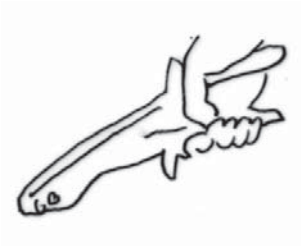
Bending wrist sideways



Working with palm facing up

Working with palm facing down

SOLUTIONS



Select tools that promote good wrist postures and power grips

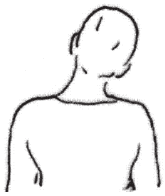
Choose tools that are right for the task/working height

HEAD/NECK POSTURES

HAZARDS

Neck bent forward

Neck bent backward



Neck bent to one side

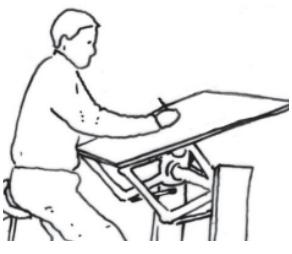
Neck turned to one side

SOLUTIONS

Raise task/equipment to reduce forward neck bending

Place important visual displays directly in front of user

Provide head sets to reduce side bending of neck



Angled doccuent holders/ work surfaces improve neck postures

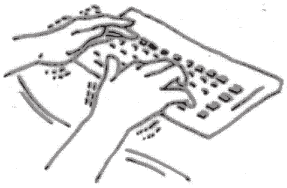
MSD Hazards & Solutions: **Repetition**

LOWER FORCE + GOOD POSTURE + LESS REPETITION = REDUCED MSD RISK

REPETITIVE HAND USE

HAZARDS

Hand-intensive manual softing/packaging



Keyboard use

Repetitive hand tool use

SOLUTIONS

Use good job rotation schemes

Switch hands from time to time

Use well-designed power tools

Take breaks

MSD Hazards & Solutions: **Repetition**

REPETITIVE AWKWARD POSTURE

HAZARDS

Repetitive reaching/lifting to shoulder height

Repetitive working and bending

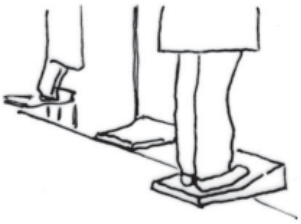
Repetitive twisting and reaching

Repetitive bending

SOLUTIONS

Raise bins/use spring loaded inserts

Use height-adjustable tables/carts



Use height-adjustable work platforms

Tilt work up to reduce reaching

Use well-designed document holders

MSD Hazards & Solutions: **Repetition**

REPETITIVE MATERIAL HANDLING

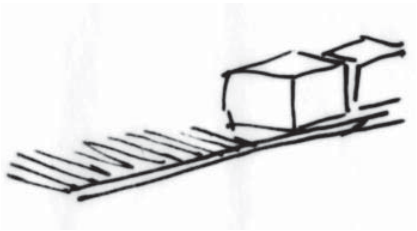
HAZARDS

Repetitive lifting and carrying

Repetitive pushing/pulling

SOLUTIONS

Use well-designed hoist for repetitive handling

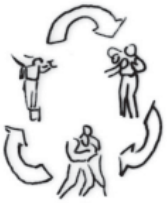


Use roller conveyors to reduce repetitive lifting/handling

Mechanize repetitive material handling where necessary

Use specially designed equipment to reduce repetitive handling/carrying

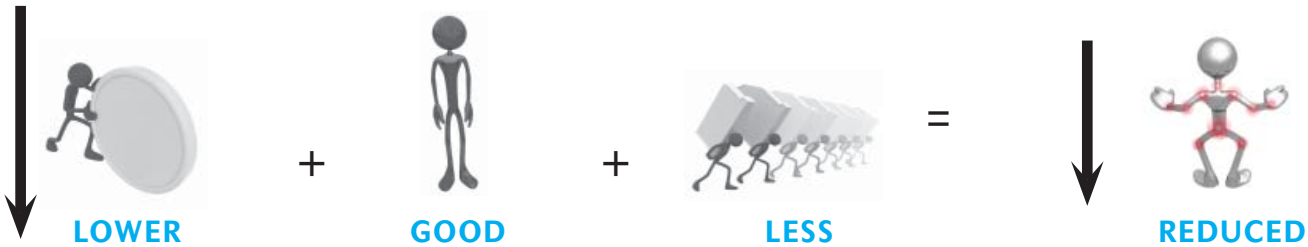
GENERAL SOLUTIONS FOR DIFFERENT REPETITIVE TASKS



Job rotation

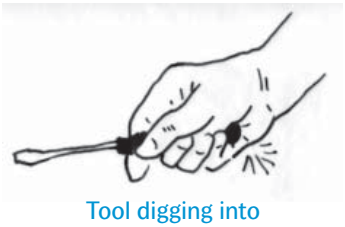
Frequent breaks

MSD Hazards & Solutions: **Other**

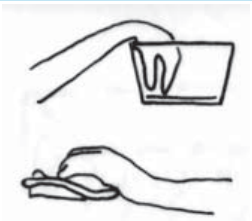


CONTACT STRESS

HAZARDS

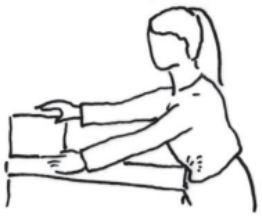


Tool digging into fingers/palm/hand



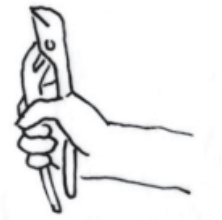
Sharp edges digging into wrists

Seat pan digging into back of the knee

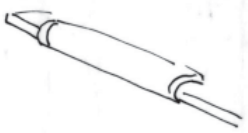


Sharp edges digging into body

SOLUTIONS



Use tools with handles that extend past the palm



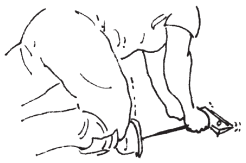
Select equipment, tools with rounded edges or provide padding

Provide good support for forearms

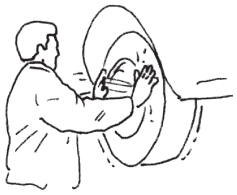
Adjust chair so feet are flat on the floor and there is space between seat and back of legs

USING KNEE/HAND AS HAMMER

HAZARDS



Using knee as hammer



Using hand as hammer

SOLUTIONS

Use a rubber mallet instead of hand for hammering

Use knee pads/padded gloves

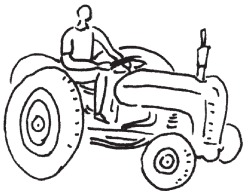
Use a mechanical device to replace knee/hand hammering

MSD Hazards & Solutions: **Other**

VIBRATION

HAZARDS

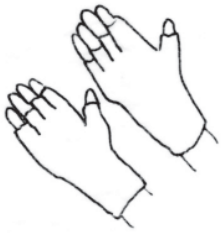
Hand-arm vibration



Whole-body vibration

SOLUTIONS

Use tools designed to reduce vibration



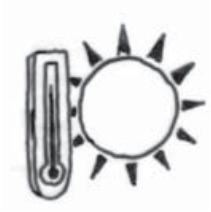
Use anti-vibration gloves

Use good anti-vibration seat suspensions

Keep roads/travel surfaces smooth

HOT/COLD

HAZARDS

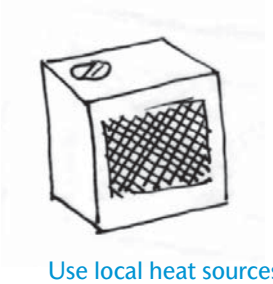


Hot temperatures

Cold temperatures

SOLUTIONS

Drink water to keep hydrated



Use local heat sources for whole body, hands

Use handwarmers/gloves to keep hands warm

Wear appropriate clothing

Take breaks – to cool down or warm up

Eliminating/controlling MSD risks: Developing Solutions Worksheet

This worksheet is designed to be used when brainstorming control options and ideas. The worksheet encourages workplaces to consider potential MSD controls from all aspects of the job – work processes, equipment, materials, environment, and human elements (PEMEH). All the individuals involved in the MSD prevention project, and especially the workers, should be part of the brainstorming session to identify controls that they think will help to solve the problem.

Some examples of points to consider for each category include:

PROCESS:

- self-paced tasks, cycle time allows for micro-breaks
- job enlargement and/or task rotation
- improve work/material flow
- improve communication between workers performing task
- improve communication between workers on adjacent tasks
- improve communication between workers and production, quality, planning, engineering, etc. departments
- timely response to reports of defects, equipment breakdown, product/tool/equipment damage
- adequate staffing levels for workloads

MATERIALS:

- organize stock on shelves taking weights into consideration
- reduce frequency of sub-standard/ poor quality materials
- purchase in manageable weights/sizes
- purchase materials in bulk containers
- redesign packaging to include handles
- store materials in areas that are easy to access

ENVIRONMENT:

- organize workstations to enhance interactions
- redesign workstation layout to provide space for movement and required job tasks
- improve house-keeping
- ensure comfortable working temperature
- provide anti-fatigue matting

EQUIPMENT:

- mechanize a process
- provide mechanical lifts, hoists, conveyors, motorized carts
- improve workstation design/layout
- workstation adjustability (sit/stand, height adjustable)
- preventative maintenance
- pre-shift checklist/inspections
- move control, displays, tools for easier use, visibility, access
- make sure controls are properly labeled/ colour coded
- provide space for workers to move, allow unconstrained postures
- provide material handling equipment for moving materials

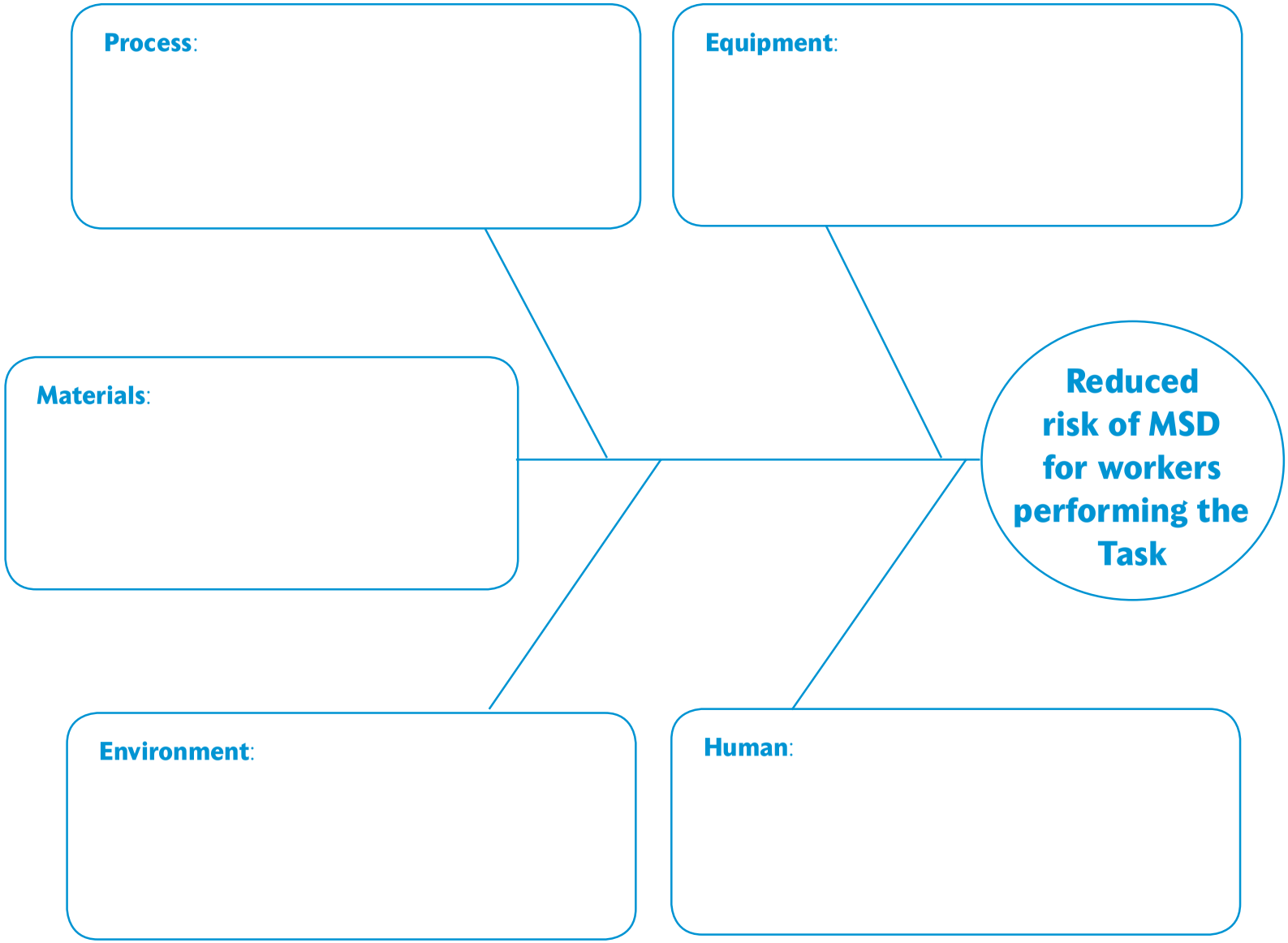
HUMAN:

- training including:
  - signs & symptoms of MSD
  - MSD hazard awareness
  - how to report MSDs/MSD hazards
  - work techniques and processes
- team-based solutions/participatory problem solving
- reinforce need for use of equipment/controls that help reduce MSD risk
- improve communication/support from supervisors
- support for early reporting of concerns
- personal protective equipment (insoles, knee pads, anti-vibration gloves)
- production pressures and demands

Eliminating/controlling MSD risks: Developing Solutions Worksheet

If agreement on the root cause(s) is not reached, an in-depth risk assessment may be required. See *Part 3B: MSD Prevention Toolbox – Beyond the Basics*

What is the MSD Hazard we are trying to control _____



One-Minute Employee Feedback Survey

The One-minute Employee Feedback Survey is a tool used to collect and document workers' feedback on MSD hazard controls that have been implemented. The survey allows for anyone who has used the control to comment on their overall satisfaction with the tool, its advantages, disadvantages, and any suggestions for improvement. It is an excellent and quick way to obtain feedback from those who are using the controls.

Prior to using this tool, workers need to receive appropriate training on how to use the control and be given time to use the control under regular work conditions.

Depending on the number of workers involved, the survey may be sent to a sample of workers. The larger the sample, the more helpful the information received will be. All shifts should be covered.

Workers should be informed about the purpose of the survey and given time to complete it at work.

This survey is provided as one means of collecting worker feedback. Your organization may have other methods or surveys to collect this type of information.

This survey is a modified version of the "1 Minute Survey Form" that appears in Research at Work: Ergonomics Program Implementation Blueprint, University of Waterloo. Used with permission.

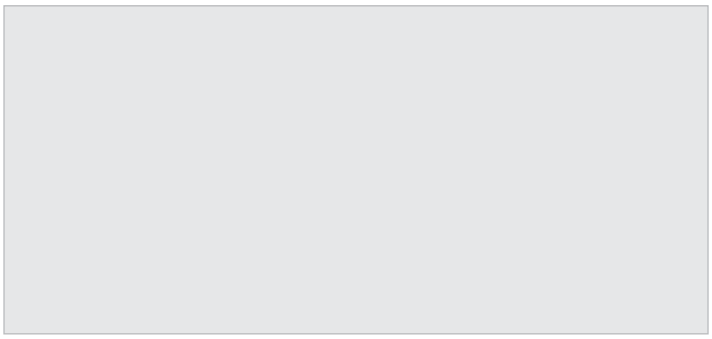
One-Minute Employee Feedback Survey

This survey is being used to collect your opinions of the recent changes/improvements that have been made for your job/workstation. Please let us know what you think about the effectiveness, advantages and disadvantages of this change and provide any suggestions you might have for further improvement.

Job/task description: _____ Shift: _____ Date: _____

MSD hazard control/improvement : _____

Picture or description of change/improvement



1. Have you used this control/improvement?

NO, HAVEN'T EVEN SEEN IT	NO, HAVE SEEN IT BUT NOT USED IT	YES, ONCE OR TWICE	YES, A FEW TIMES	YES, REGULARLY

2. If you answered yes, how would you rate this control/improvement?

DISLIKE IT – WORSE THAN BEFORE!		NO DIFFERENT THAN BEFORE		LOVE IT – HUGE IMPROVEMENT!
1	2	3	4	5

3. What are some advantages of this control/improvement?

4. What are some disadvantages of this control/improvement?

5. Do you have any suggestions for this control/improvement?

Things to consider when selecting a person to help you with MSD prevention

Ergonomics focuses on the design of products, work processes, organizations, and systems in order to optimize human well-being and overall system performance. Since most MSDs are somehow related to poor ergonomics, it is important that anyone providing guidance and advice on how to prevent MSDs should have specific education and training in ergonomics methods, theories, concepts and principles as they relate to the prevention of MSDs.

Here are some things to consider when selecting an individual to assist you with your MSD prevention efforts:

1. Does the person have the education, training and experience to assist with MSD prevention?
   - **a**. Does the person have a background in one or more of the following areas: engineering, ergonomics, kinesiology, occupational health and safety, occupational hygiene, occupational medicine, occupational nursing, occupational therapy, physiotherapy, or psychology?
   - **b**. Does the person also have specific training, education, and experience related to ergonomics and MSD prevention? If hiring an external consultant, ask if the person is certified by a professional organization.
2. Is the person experienced to work in your type of workplace?
   - **a**. Ask if the person has experience in your type of workplace or sector. For example, a health care setting has different issues than a retail setting, which is different again from a manufacturing workplace.
3. Can the person provide relevant references?
   - **a**. Ask for references and make sure you check them.

There are a number of professions that may provide services related to MSD prevention, such as:

Ergonomists

Ergonomists have a variety of backgrounds, including engineering, kinesiology, occupational therapy, physiotherapy, and psychology. These individuals will have specific specialized training, education and experience related to the assessment of how humans interact with tools, equipment, workstations, jobs, tasks, and organizations, and the design of systems to reduce risk and maximize performance. Canadian Certified Professional Ergonomists (CCPE) are certified by the Canadian College for the Certification of Professional Ergonomists and are members of the Association of Canadian Ergonomists.

Association of Canadian Ergonomists **www.ace-ergocanada.ca**

Kinesiologists

Kinesiologists are trained in the functional assessment and training of human movement in order to improve function, reduce risk and promote health. Kinesiologists who have received specific training, education, and have experience in the area of ergonomics can provide workplaces with assistance related to MSD prevention. In Ontario, kinesiologists are certified by the Ontario Kinesiology Association. In the near future, kinesiologists will be registered by the College of Kinesiologists of Ontario.

Ontario Kinesiology Association **www.oka.on.ca**

Occupational Therapists

Occupational therapists are trained in the physical, psychosocial and cognitive sciences in order to remove obstacles that can affect an individual's function and their ability to participate meaningfully in their chosen occupation. Occupational therapists who have received specific training, education, and have experience in the area of ergonomics can provide workplaces with assistance related to MSD prevention. In Ontario, occupational therapists are registered by the College of Occupational Therapists of Ontario.

College of Occupational Therapists of Ontario **www.coto.org**

Physiotherapists

Physiotherapists are trained to break down the barriers to and improve physical function that may be compromised due to surgery, illness and disease, injury, industrial and motor vehicle accidents, and age related conditions. They also promote health and disease prevention. Physiotherapists who have received specific training, education, and have experience in the area of ergonomics can provide workplaces with assistance related to MSD prevention. In Ontario, physiotherapists are registered by the College of Physiotherapists of Ontario.

College of Physiotherapists of Ontario **www.collegept.org**

Occupational Health Nurses

Occupational health nurses are trained to recognize occupational health issues and to work within workplaces to treat injured workers, facilitate their return to work, identify injury trends and promote workplace health and wellness. Occupational health nurses who have received specific training, education, and have experience in the area of ergonomics can provide workplaces with assistance related to MSD prevention. In Ontario, occupational health nurses are certified by the Canadian Nurses Association.

Ontario Occupational Health Nurses Association **www.oohna.on.ca**

Occupational/Industrial Hygienists

Occupational hygienists are trained in the recognition, assessment and control of workplace chemical, biological and physical hazards. Occupational hygienists who have received specific training, education, and have experience in the area of ergonomics can provide workplaces with assistance related to MSD prevention. Occupational hygienists are certified in Canada through the Canadian Registration Board of Occupational Hygienists.

Occupational Hygiene Association of Ontario **www.ohao.org**

Chiropractors

Chiropractors are trained to assess, diagnose and treat disorders related to the spine, pelvis, extremity joints, and the nervous system. Chiropractors who have received specific training, education, and have experience in the area of ergonomics can provide workplaces with assistance related to MSD prevention. In Ontario, chiropractors are registered by the College of Chiropractors of Ontario.

College of Chiropractors of Ontario **www.cco.on.ca**

PREVENTION TOOLBOX A