Western

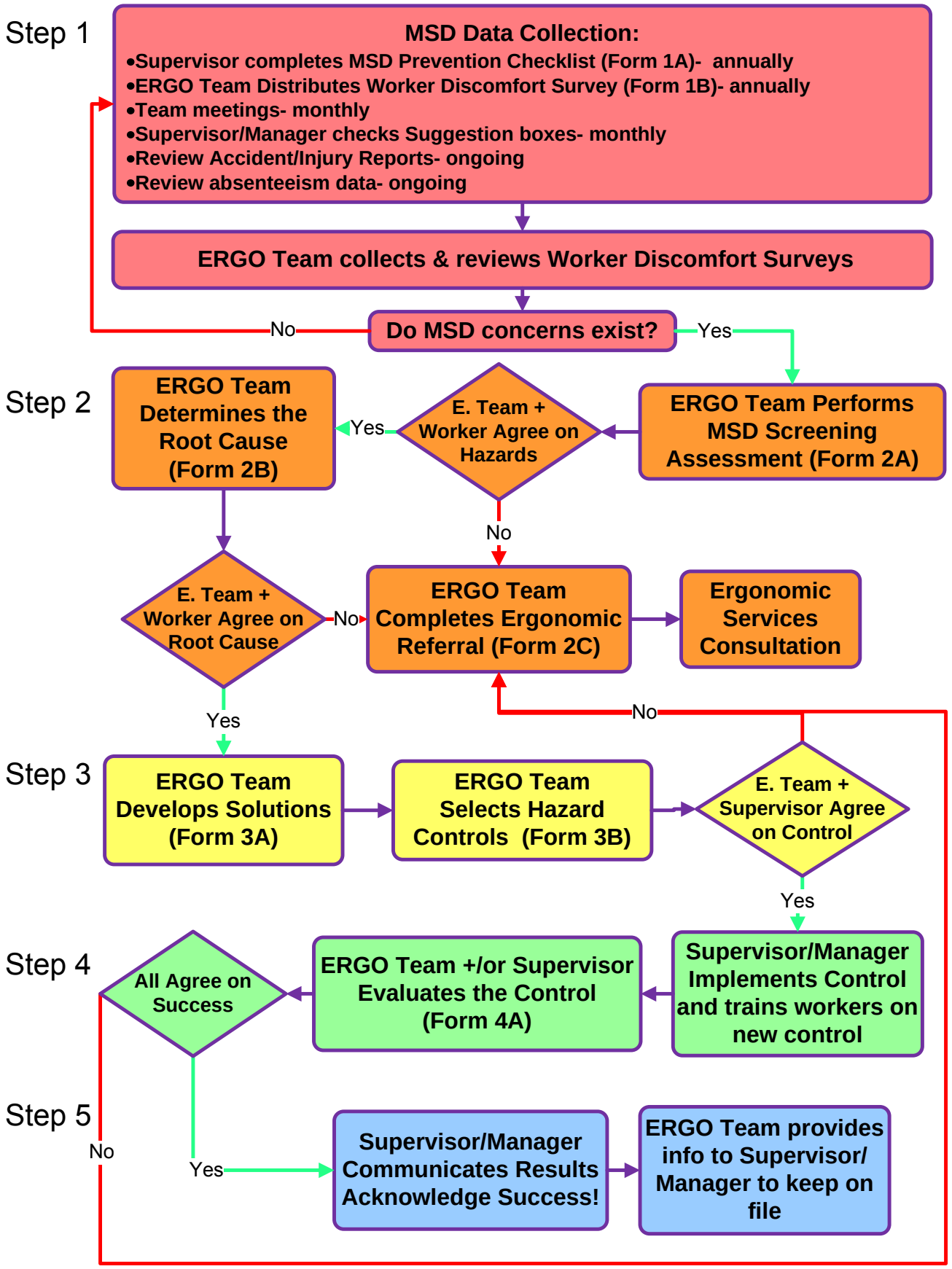
Musculoskeletal Disorders Prevention Program

June 2011

MSD

MUSCULOSKELETAL DISORDERS

MSD Prevention Process



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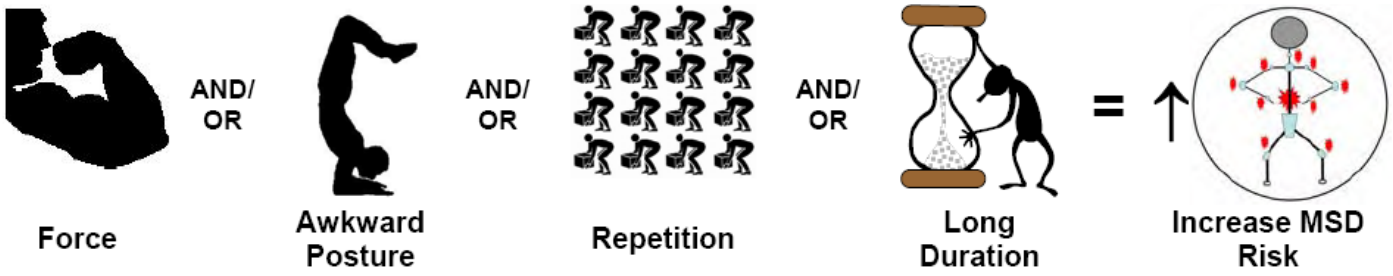
What are MSDs?

Musculoskeletal Disorders (MSDs) are injuries and disorders that affect our musculoskeletal system (i.e. muscles, tendons, ligaments, nerves, discs, blood vessels, etc.).

Why do MSDs Occur?

At a high enough level any one MSD hazard can cause an injury (for example: lifting a heavy box 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).



Signs and Symptoms of MSDs

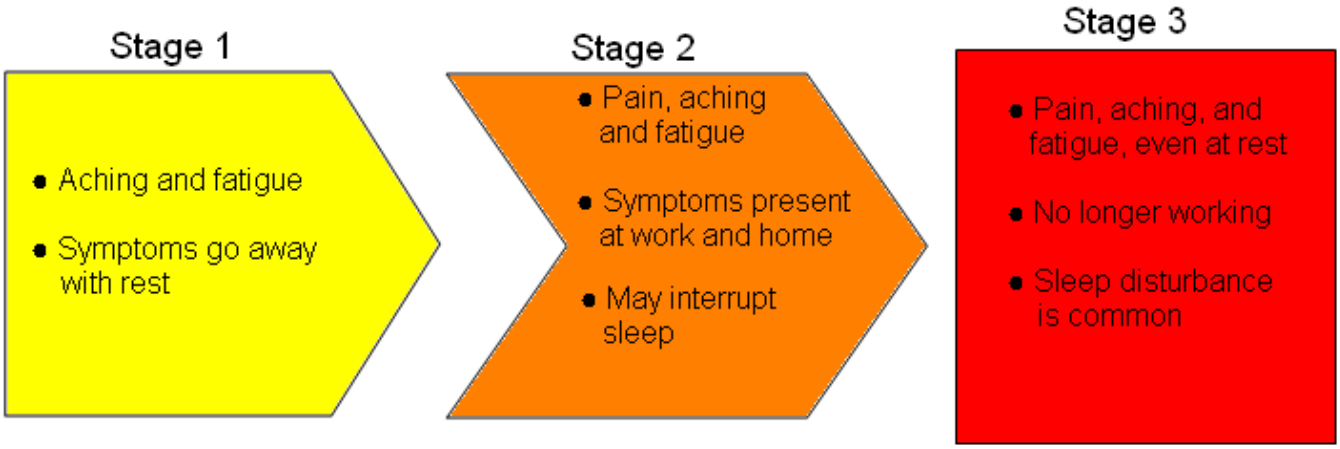
Signs – Can be directly observed

- Redness
- Heat
- Swelling
- Reduced movement

Symptoms – Can be felt but not observed

- Pain
- Discomfort
- Weakness
- Tingling
- Numbness

Stages of MSD Development



*Report Discomforts between Stage 1 & 2 -- Early Reporting Most Effective in Preventing Injuries

MSD Prevention Program Guidelines

Purpose

To create awareness of musculoskeletal disorders (MSDs) and the hazards associated with them, and to begin to address potential MSDs through recognition, assessment and control activities.

Scope

This program applies to all University of Western Ontario Departments with material handling jobs and will be maintained annually.

Roles and Responsibilities

Employer shall:

- Have legal responsibilities for health and safety and must “take every precaution reasonable” to protect workers.
- Integrate ergonomics into the health and safety program.
- Make MSD hazard recognition training available to all workers.
- Ensure supervisors know how to recognize MSD hazards and know what to do if a worker reports a concern.
- Annually evaluate and update this program.
- Communicate evaluation results and acknowledge successes as required by this program.

Supervisors/managers shall:

- Have legal responsibilities for health and safety, and must “take every precaution reasonable” to protect workers.
- Ensure workers are aware of MSD hazards in their job and MSD warning signs.
- Ensure workers use equipment and protective devices properly.
- Encourage workers to report signs and symptoms of MSD early.
- Respond promptly to worker reports of MSD signs and symptoms.
- Include MSD hazard recognition as part of regular inspections.
- Provide training for workers on general MSD awareness.
- Participate in all stages of identifying, recognizing, and controlling MSD hazards within their department.
- Involve the Ergonomic Team to assist in the assessment and development of controls in their department when necessary.
- Maintain records pertaining to training, communication, hazard identification, hazard analysis, and accident/incident investigation.

Workers shall:

- Make sure they have been trained to do their job safely and know the hazards/factors that could cause MSDs.
- Report any signs and/or symptoms of MSDs to their supervisor (e.g., discomfort, numbness, tingling and/or pain).
- Report any unsafe acts, hazards, equipment problems, or any other unsafe tasks immediately to their supervisor.

- Cooperate with accident/incident investigations and with MSD hazard identification and assessment activities.
- Correctly use equipment provided by the employer and use appropriate body mechanics as per MSD prevention training provided (e.g., lift properly).
- Go to supervisor with questions, concerns, or requests for additional ergonomics/MSD hazard related training.
- Offer suggestions to improve working conditions to supervisor or to the Ergonomic Team.

Joint Occupational Health and Safety Committee/Occupational Health and Safety:

- Get training on recognizing, assessing, and controlling MSD hazards.
- Actively look for MSD hazards during activities such as workplace inspections and accident/incident investigation
- Participate in an annual review of this program.

Ergonomic (ERGO) Team:

- Consists of a Health and Safety representative and an Ergonomic Specialist
- Participate in workplace inspections to identify MSD hazards.
- Identify MSD hazard priority areas and complete simple MSD hazard assessments. Develop recommendations for controls.
- Engage appropriate assistance to identify MSD hazards/controls when the root cause and/or solution to a hazard are not unanimously agreed upon.
- Meet and discuss MSD control recommendations with the area Supervisor/Manager.
- Arrange meetings with upper management to review unresolved items
- Collect assessment paperwork and provide to the department Supervisor/Manager to keep on file.

Procedures

General

The MSD Prevention program will be reviewed annually with the JOHSC.

New equipment and/or tools will be assessed by the Ergonomic Team for proper ergonomic design principles prior to purchase/recommendations.

An Ergonomic summary/review will be provided to all workers involved and completed prior to any changes to people, equipment, materials, environment, or process.

Reporting Discomfort/Pain/Injury

All workers will report to their supervisor if medical aid or lost time has occurred to complete and Accident/ Incident Form. Otherwise MSD hazards and any incidence of MSD signs and symptoms can be reported through worker discomfort surveys (Form 1B) or to their supervisor.

Managers and supervisors will ensure positive reinforcement of workers that report MSD hazards, signs and symptoms.

MSD Hazard Recognition

The following processes will be utilized to identify MSD Hazards:

Recognize jobs with **existing** MSD issues by:

Reviewing accident/incident investigation reports
Reviewing discomfort surveys/reports of concerns

Recognize jobs with **potentia**l MSD hazards by:

- Understanding the MSD hazards; posture, force, repetition, as well as other contributing factors
- MSD Prevention Checklist (Form 1A) – Completed by Supervisor
- Conducting a Worker Discomfort Survey (Form 1B) – Completed by Worker
- Optional: MSD Hazard identification tool (Form 2A) – Completed by Ergonomic Team
- Completing the In-Depth Risk Assessment Referral (Form 2C) – Completed by Ergonomic Team
- Observations during workplace inspections
- Talking to workers and follow up on worker reports
- Review worker suggestion box submissions/worker concerns

MSD Hazard Assessment

A simple MSD Screening Assessment will be completed:

- MSD Prevention Checklist tasks identified by the Supervisor
- When an MSD injury and/or discomfort has been reported for a particular task
- For any task that has two or more MSD injuries

The MSD Hazard Identification Tool (Form 2A) may be used to assist the Ergonomic team to identify any risks.
At least one worker from the job/task being assessed will be recruited to assist and provide additional information for the MSD screening assessment.

The MSD Screening Assessment will include reviewing:

- A summary of reports of pain and discomfort
- A summary report about worker concerns
- Information related to MSD claims for the job/task
- Information and concerns related to absenteeism and productivity
- The Prevention Checklist (Form 1A)

The MSD Screening Assessment will include collecting input from the following:

- Other workers
- Workers who have experienced discomfort or injury on the job being assessed
- Supervisors
- Health and Safety Representative
- Ergonomic Specialist

The people/person completing the MSD Screening Assessment will attempt to reach consensus on:

- If an MSD hazard exists and/or if further action is required.
- The type of MSD hazard(s) existing within the task.
- The root cause of the hazard (the team should consider the following contributing factors: people, equipment, materials, environment, and process) – Option to use Form 2B.

When the people/person completing the MSD Screening assessment do(es) not reach a consensus on the hazards/root cause of the MSD hazard, or they do not fully understand the hazard, or the hazard is quite complex, an Ergonomic Specialist will complete an in-depth risk assessment comparing information to industry standards, or published guidelines (Form 2C).

If it is agreed that the task exposes the worker to an increased risk of injury, and/or an in-depth risk assessment indicates that the MSD risk for workers is increased, then steps will be taken to select and implement controls for MSD hazards.

If there is no indication that the task has an increased risk of MSD, and there is no history of MSDs or reports of pain/discomfort for the task, then no further action may be required. However, the workplace will continue to monitor the task.

If the in-depth risk assessment indicates that the risk of MSD for a job is acceptable, but the job or task has a history of MSDs and/or reports of pain/discomfort, then the workplace will consider the following:

-Reviewing the risk assessment methods used to ensure that appropriate methods were used to identify and report MSDs

-Determine whether accommodations to address individual needs are necessary or possible

-If other factors not addressed during the risk assessment may be contributing to the development of MSDs.

In depth assessment reports will be provided to the Supervisor/Manager for follow up and record keeping.

MSD Hazard Control

If the results of the assessment indicate controls are necessary:

Recommendations regarding MSD hazard controls will be developed by the Ergonomic Team.

The people/team developing the controls will:

Ensure involvement of appropriate workers
Review identified hazards and discuss priority hazards
Brainstorm control options/ideas – Option to use Developing Solutions Worksheet (Form 3A)
Review/investigate control options/ideas
Select preferred control options

Recommendations regarding MSD hazard controls will be made as per the following priorities:

Engineering changes, where feasible, will be the preferred method of control.
If engineering controls are not feasible, administrative controls, work practices or personal protective equipment may be used.
Temporary control measures may be used, until more permanent controls can be implemented.

A Summary Form (Form 3B) of the chosen MSD hazard controls will be reviewed and provided to the Supervisor/Manager for implementation and record keeping.

Follow-up/Evaluation

The Supervisor will direct the implementation of MSD controls (Contact Ergonomic Team if assistance is required).

The Ergonomic Team and/or Supervisor will also follow-up at adequate intervals, (as identified in the Evaluation section), to ensure the controls used are having the desired effect.

Success of the control will be evaluated/ reported and kept on file by the Supervisor/Manager.

Communicate Results and Acknowledge Success

The department Supervisor/Manager will be responsible for communicating results and acknowledging success.

Communication

A copy of this program may be downloaded from the Ergonomic website (http://www.uwo.ca/humanresources/facultystaff/h_and_s/rehab/ergonomics/index.htm). Another copy of this program will also be stored in the Health and Safety/Rehabilitation Departments.

Supervisors are accountable for ensuring new workers are made aware of their roles and responsibilities of this program during orientation.

In departmental safety meetings, safety talks should include such topics as: the signs and symptoms of MSD, responsibilities of workers to report MSD hazards, and/or ways/tips to avoid musculoskeletal disorders regularly.

Training

During new worker orientation, training will be provided on general MSD hazard awareness/recognition (e.g., MSD hazards, signs and symptoms).
All workers will be trained on the signs and symptoms of MSDs. Refresher training is recommended every 2 years.

Supervisors will be trained on hazard identification techniques, risk assessment and hazard classification, problem-solving and control of hazards, and reporting procedures. Refresher training will be offered every 2 years

Evaluation

Administer Worker Feedback (Form 4A) after any ergonomic changes are implemented to ensure the controls are having the desired effect.

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MSD Prevention Program

MSD Prevention Checklist – Form 1A (Keep filed in JHA Binders)

Completed by Supervisor: _____ Area: _____Date: _____

JOB:	**How many workers assigned to this job?**		
Do workers performing this job:	**Yes**	**No**	**If yes, what task**
Force			
Lift, lower or carry heavy objects			
Have difficulties pushing or pulling items/objects			
Do jobs that require difficult and forceful gripping with the hands			
Use tools that require a great deal of effort to hold, control or use			
Use the hands to pound or hammer things			
Do other high force jobs not covered above			
Awkward Posture			
Work with the hands above the shoulders or held far away from the body			
Do jobs with one or both arms behind the body			
Bend or twist the back/trunk			
Bend or twist the neck forward, back or to the side			
Hold the neck to one side (e.g. holding phone between ear and shoulder)			
Need to bend or twist the wrist			
Pick-up or hold things using difficult grips (pinch grips, wide finger grips)			
Need to use other awkward postures that are not covered above			
Repetition			
Have to lift, lower or carry objects repeatedly			
Repeatedly push or pull things when doing their job			
Repeatedly grip or manipulate things with the hands/fingers			
Repeatedly use awkward back or neck postures			
Repeatedly use poorly designed hand tools when doing their job			
Repeatedly use awkward postures that are not covered above			
Use hand tools that vibrate and/or are exposed to whole body vibration			
Have too little space/clearance at the workstation/work area			
Have to stay in awkward postures for a long time without a change			
Sit or stand for long periods of time without a change in posture			
The same task(s) is repeated every 30 seconds for 1 hour or more			

Please identify any areas to the Ergonomic Team where you feel the workers may be exposed to MSD hazards and further assessment is required.

Worker Discomfort Survey – Form 1B

Discomfort surveys have been widely used to further identify and "quantify" musculoskeletal discomfort/pain felt by workers. The concept of the survey is simple. Workers are presented with a figure of a body. This figure is broken down into areas representing the major regions/limbs/joints of the body. The worker is asked to rate their level of discomfort for each body region by numbering their pain on a scale from 0-10. A score of 0 indicates no discomfort while a score of 10 indicates the worst discomfort ever experienced.

The survey asks about other jobs that have been done in the past year in order to capture whether alternate work may have contributed to or been the cause of a worker's discomfort. At the end of the survey, the workers are given the opportunity to identify what they think caused the problem. This enhances the workplace's commitment to worker participation in the MSD prevention initiatives.

Just having one worker fill in one survey is not enough, as the survey is best suited for use on jobs with 10 or more workers. Ideally, all workers who perform a job should take part in the survey. The suggested method for use of a discomfort survey is:

- Supervisor/ERGO Team to meet with workers to be surveyed to discuss the survey, why it is being done, how it is filled out and the methodology you will use to conduct the survey. Stress that the survey is anonymous.
- Workers should be asked to fill in the survey during work hours, and, ideally, without assistance. Assistance should be provided, however, on request.
- Data from the surveys can be used to identify the body area/regions/joints in which workers are experiencing discomfort or pain. This information can then be related back to what is known about the job demands in order to identify the jobs or activities that may be contributing to worker discomfort.
- ERGO Team will look for common areas of discomfort between workers. If a number of workers are reporting discomfort in the same body part(s) then an effort should be made to determine if the job is contributing to this discomfort.
- Survey results can also be used to prioritize jobs for further action. Those jobs with the highest number of discomfort areas or the highest ratings of discomfort severity would become primary candidates for hazard identification and determining the need for controls.
- Data from surveys taken before a modification to the job, production levels or work method can be compared to data from surveys taken after the change to see if the levels of discomfort have increased or decreased.
- If using the survey before and after implementing a control, make sure the survey is given out on the same day of the week and at the same time of the day – Monday morning results can be very different than Friday afternoon. Make sure enough time has elapsed between the before and after so that the impact of the change can be seen.

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Worker Discomfort Survey– Form 1B

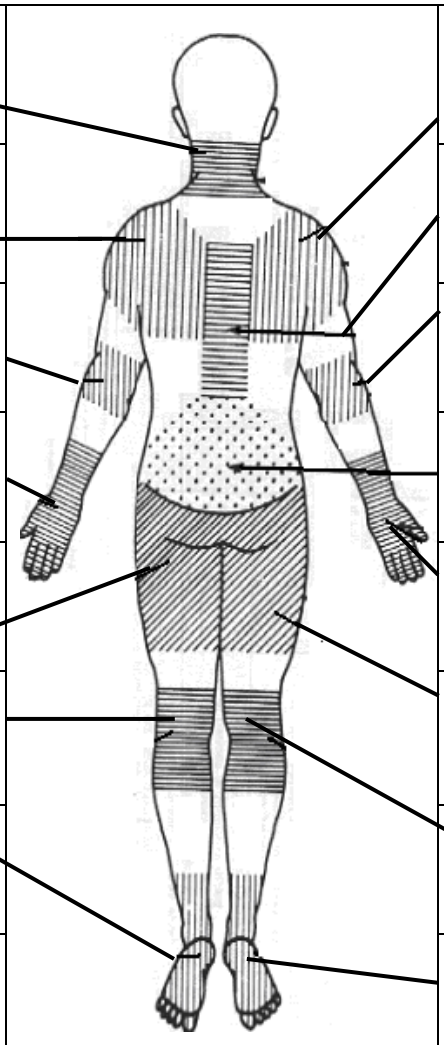
The worker is asked to rate their level of discomfort for each body region by numbering their pain on a scale from 0-10. A score of 0 indicates no discomfort while a score of 10 indicates the worst discomfort ever experienced. All workers who perform a job should take part in the survey. For further information: http://www.uwo.ca/humanresources/facultystaff/h_and_s/rehab/ergonomics/index.htm

Date: _____ Job: _____ Area: _____

Hours worked/week :_____ Time on THIS Job: _____ Years _____ Months

1. Have you had pain or discomfort during the last year?
[ ] Yes [ ] No (if NO, Stop here)

2. If YES, please rate the level of discomfort over the last MONTH by completing the 'how much?' box using the scale of 0 to 10, with 0 being no discomfort and 10 being the worst discomfort ever.

How often? Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____	Neck		Right Shoulder	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____
How often? Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____	Left Shoulder		Upper Back	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____
How often? Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____	Left Elbow / Forearm		Right Elbow/ Forearm	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____
How often? Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____	Left Wrist / Hand		Lower Back	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____
How often? Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____	Left Hip / Thigh Buttock		Right Hand / Wrist	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____
How often? Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____	Left Knee		Right Hip/ Thigh / Buttock	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____
How often? ☐ Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____	Left Ankle / Foot		Right Knee	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____
				Right Ankle/ Foot	**How often?** Rarely ☐ Occasionally ☐ Frequently ☐ Constantly ☐	**How much?** _____

If you are a recent hire, please list other jobs you have done in the last year (for more than 2 weeks)
Note: If more than 2 jobs, only include those you worked on the most

Job _____ **Time on THIS Job** _____ months _____weeks

Job _____ **Time on THIS Job** _____ months _____weeks

3. When did you first notice your discomfort? _____ (month) _____ (year)

4. What do you think caused the discomfort? Is it a specific task?

5. Please comment on what you think would help to reduce your level of discomfort. Any changes or recommendations you would make to the work environment to reduce risk of injury?

6. Do you consider your discomfort to be a problem?

☐ Yes ☐ No

7. Have you have missed time from work (vacation, sick days,) or attended medical review as a result of your work related discomfort?

☐ Yes ☐ No

If yes, and you have not already completed an Accident/ Incident Report, you are required to notify your supervisor to follow the reporting process.

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MSD Hazard Identification Tool – Form 2A

This MSD Hazard identification Tool is an optional worksheet that can be used during the **MSD Screening Assessment.** It is provided to help you identify jobs that have MSD cautions and hazards, where workers **may** be at an increased risk of developing an MSD.

IMPORTANT – READ THIS BEFORE USING THIS TOOL

This tool is to be used to identify job related MSD hazards in a workplace.

This tool needs to be used with the full participation and input of workers who perform the job being looked at. 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, pain and/or discomfort reports etc. 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

1. **Document** the job, 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 if they think the objects are heavy, or the job is difficult/tiring.
4. **Ask the workers** if they adopt an awkward posture repeatedly or for a long period of time.
5. **Check** the appropriate box (es) that apply to the job or task.
   * **Only make a 'check'** when the specific activity exists and when workers report that it is difficult, tiring, heavy, done repeatedly, etc.
6. **Write** notes for any identified areas to clarify 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.

Notes:
If the physical demands related to the job vary from day to day, due to different products/services being produced or provided, ask the worker if the activities being observed are more or less demanding than on a typical day.

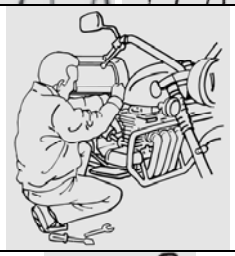
- If less demanding, plan to come back when the demands are both more typical and, if appropriate, higher.
- If more demanding, complete the hazard identification tool. It may be that MSD hazards are only a concern when performing specific tasks/activities. You should also re-use the tool when the demands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

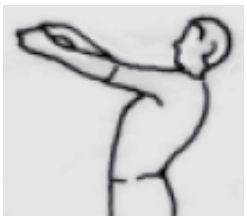
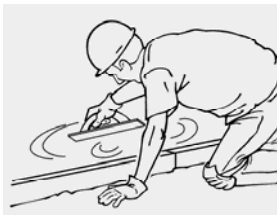
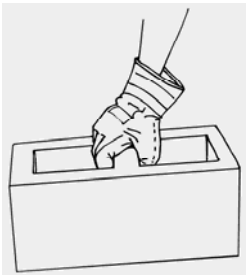
Some MSD hazards, (e.g. lighting, aspects of work organization, work practices, etc.) are not addressed in this tool. If these or other MSD hazards exist, make note of them and ask the workers who perform the job to see if they think that these hazards are contributing to their pain/discomfort and/or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

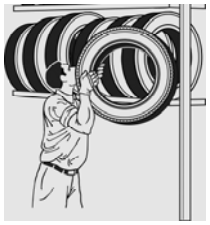
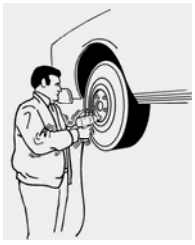
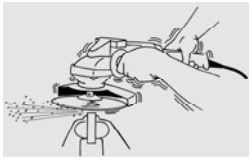
MSD Hazard Identification Tool – Form 2A

Ergonomic Team Member Name: _____ Date: _____

For further information refer to the MSD Prevention Program Workbook:
http://www.uwo.ca/humanresources/facultystaff/h_and_s/rehab/ergonomics/index.htm

Job Screened:		
Movements or postures that are a regular and foreseeable part of the job, occurring more than one day per week, and more frequently than one week per year.	If done in this job ✓ the box	Number of workers performing this job?
Awkward Posture		**Comments/Observations**
 **1.** Working with the hand(s) above the head, or the elbow(s) above the shoulders more than 2 hours total per day	☐	
 **2.** Working with the neck rotated more than 45 degrees in either direction for more than 2 hours total per day	☐	
 **3.** Working with forward head/ neck bent back more than 20 degrees for more than 2 hours total per day.	☐	
 **4.** Squatting more than 2 hours total per day.	☐	
 **5.** Working while sitting or standing with the back bent forward, sideways, or twisted more than 30 degrees for more than 2 hours total per day.	☐	

	**6.** Working while sitting or standing with the back bent back more than 20 degrees, and with no support for the back, for more than 2 hours total per day.	☐	
	**7.** Kneeling more than 2 hours total per day.	☐	
High Hand Force			**Comments/Observations**
	**8.** Pinching an unsupported object(s) weighing 2 or more pounds per hand, or pinching with a force of 4 or more pounds per hand, more than 2 hours total per day (comparable to pinching half a ream of paper).	☐	
	**9.** Gripping an unsupported object(s) weighing 10 or more pounds per hand, or gripping with a force of 10 or more pounds per hand, more than 2 hours total per day (comparable to clamping light duty automotive jumper cables onto a battery	☐	
Highly Repetitive Motion			**Comments/Observations**
	**10.** Repeating the same motion with the neck, shoulders, elbows, wrists, or hands (excluding keying activities) with little to no variation every few seconds, more than 2 hours per day.	☐	
	**11.** Performing intensive keying more than 4 hours total per day.	☐	

Repeated Impact		**Comments/Observations**
	**12.** Using the hand (heel/base of palm) or knee as a hammer more than 10 times per hour, more than 2 hours total per day. ☐	
Heavy, Frequent or Awkward Lifting (A simple scale can be used to determine the weight of materials)		**Comments/Observations**
	**13.** Lifting object weighing more than 75 pounds once per day or more than 55 pounds more than 10 times per day. ☐	
	**14.** Lifting objects weighing more than 10 pounds if done more than twice per minute, more than 2 hours total per day. ☐	
	**15.** Lifting objects weighing more than 25 pounds above the shoulders, below the knees or at arms length more than 25 times per day. ☐	
Moderate to high Hand-Arm Vibration (Closely estimate or obtain the vibration value of the tool in use)		**Comments/Observations**
	**16.** Using impact wrenches, carpet strippers, chain saws, percussive tools (jack hammers, scalers, riveting or chipping hammers) or other tools that typically have high vibration levels, more than 30 minutes total per day ☐	
	**17.** Using grinders, sanders, jigsaws or other hand tools that typically have moderate vibration levels more than 2 hours total per day. ☐	

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Determine the Root Cause – Form 2B

Ergonomic Team Member Name: _____ Date: _____

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

To provide some structure to the discussion, use the following 5 categories of possible causes for any health and safety hazard – process, equipment, materials, environment and human (PEMEH).
Start by asking **'5 whys'** for each category:

Step 1: Write down the specific MSD hazard you are concerned about to help focus the group.
Step 2: Ask why the MSD hazard exists – write the answer in the category box
Step 3: If the answer doesn't identify the root cause of the hazard, continue to ask why until the group reaches agreement on the root cause (it usually takes less than '5 whys' to get to this point)

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

Process:
- Length of time allotted to jobs
- Machine paced jobs
- Variety of jobs
- 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:
- Training on techniques/processes required
- Further supervision/coaching
- Production pressures and demands
- Differences in work methods/techniques
- Inconsistent use of equipment/controls that help reduce MSD risk

Determine the Root Cause – Form 2B

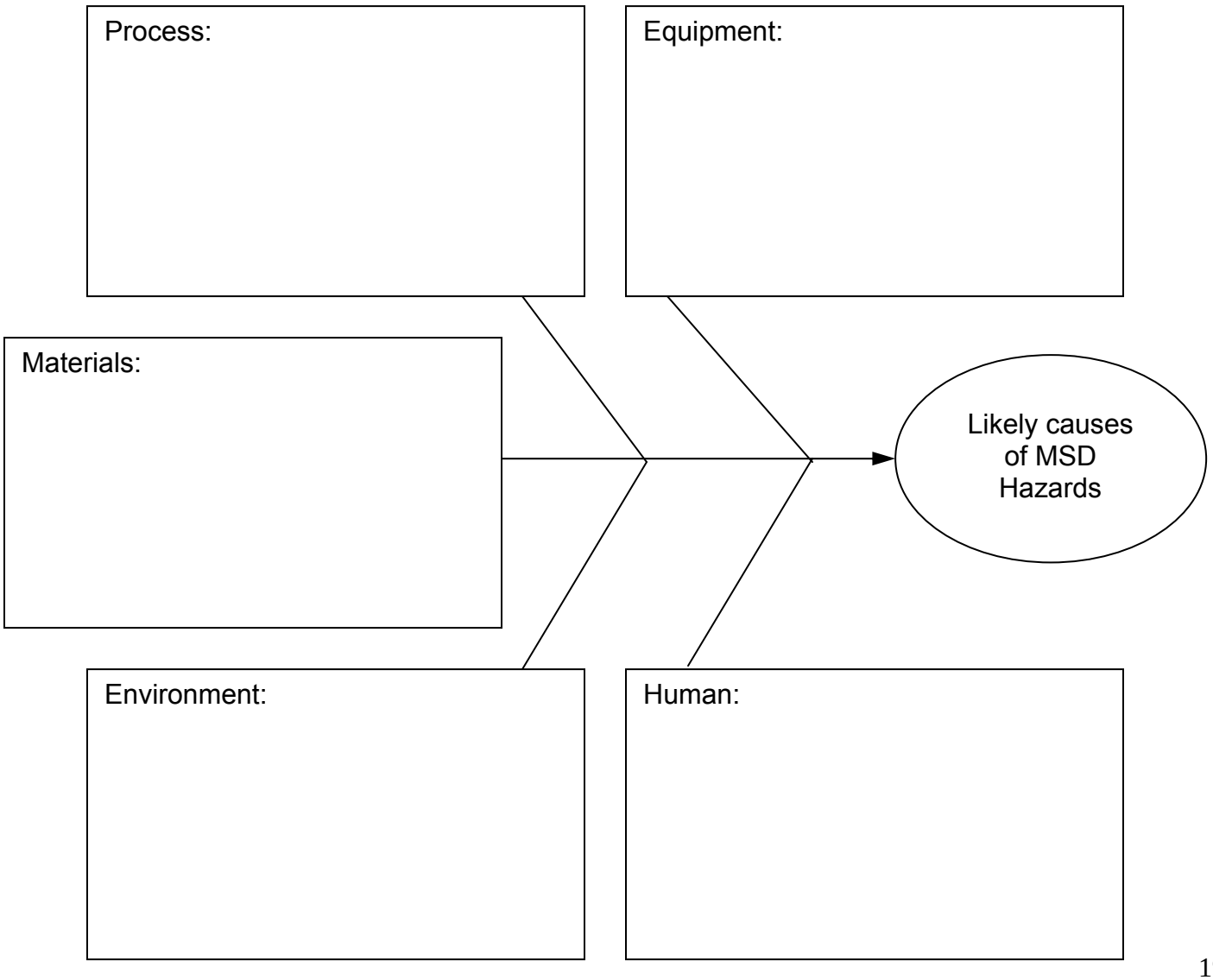
Ergonomic Team Member Name: _____ Date: _____

If agreement on the root cause(s) is not reached by the Worker(s) and the Ergonomic Team, an in-depth risk assessment may be required. In which case, a referral must be sent to the University of Western Ontario Ergonomic Specialist. See Form 2C.

For further information refer to the MSD Prevention Program Workbook:
http://www.uwo.ca/humanresources/facultystaff/h_and_s/rehab/ergonomics/index.htm

What is the MSD hazard we are concerned about?

_____



The University of Western Ontario
MSD Prevention Program

In-Depth Risk Assessment Referral – Form 2C

Completed by Ergonomic Team or Supervisor: _____ Date: _____

This form may be used for in-depth job assessment or a referral for the individual needs of a worker.

Worker Name (ID): _____ Phone Ext.: _____
Job Title: _____ Union Group: _____
Location (Building/Room #): _____ Department: _____
Supervisor: _____ Phone Ext.: _____

Services Requested:
- □ MSD Risk Assessment
- □ Job Coaching
- □ Job Demands Description
- □ Office Ergonomics Assessment
- □ Lab Ergonomics Assessment
- □ Vehicle Ergonomics Assessment
- □ Safety Assessment
- □ Group Training/Education

Priority:
- □ High (<2 weeks)
- □ Medium (2-4 weeks)
- □ Low (> 4weeks)

MSD Screening Assessment Results:

_____
_____
_____
_____
_____
_____

Individual Worker Symptoms:

_____
_____
_____
_____
_____
_____

Other Information:

_____
_____
_____
_____
_____
_____

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 opinion:

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 remove the hazard with engineered controls, as opposed to controlling exposure to the hazard?
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 workers have – what option would they prefer?
7. What impacts would the solution have either up-stream or down-stream 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 on 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
- 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 are suitable for the load being transported and are compatible with the type of flooring
- Determine the most suitable swivel arrangement of casters – 2 or 4, front or back. Ensure there is enough space so the worker does not have to use awkward postures to move the cart
- Design/change the layout of the work area to eliminate the need to push wheeled objects up slopes or over uneven surfaces
- 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 hoist, pallet trucks, pump trucks ladder hoists, gin poles, daisy chains, cranes, or chain falls
- 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 allow for height adjustability to keep the loads 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 4 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 to 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 jobs – carrying handles, extension handles
- Train workers to assess all material handling jobs 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 jobs with prolonged standing
- Provide height adjustable chairs
- Utilize lift tables to 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
- Encourage workers to take micro-breaks
- Mechanize the job 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
    - 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 duration of time that repeated impacts are required

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 workers 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 jobs
- 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 possible (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
    - 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 fork-lift trucks, sweepers and floor scrubbers before they reach their wear limits
    - 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 jobs incorporate opportunities for rest or recovery (e.g., allow brief pauses to relax muscles; change work jobs; 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 by rotating tasks or increasing the scope of the job

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

The University of Western Ontario
MSD Prevention Program

Developing Solutions Worksheet – Form 3A

Ergonomic Team Member Name: _____ Date: _____

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. All the individuals involved in the MSD prevention program, and especially the workers, should be part of the brainstorming session to identify controls that they think will help to solve the problem.

Process:

- Self-paced jobs, cycle time allows for micro-breaks
- Job enlargement and/or job rotation
- Improved work/material flow
- Improve communication between workers performing job
- Improve communication between workers on adjacent jobs
- Improve communication between workers and production, quality, planning, engineering, etc. departments
- Timely response to reports of defects, equipment breakdown, product/tool/equipment damage

Equipment:

- Mechanize a process
- Provide mechanical lifts, hoists, conveyors, motorized carts
- Improved workstation design/layout
- Workstation adjustability (sit/stand, height adjustable)
- Preventative maintenance
- Pre-shift checklist/inspections
- Move control, displays, tools for easier use, visibility access
- Provide space for workers to move, allow unconstrained postures
- Provide material handling equipment for moving materials

Materials:

- Organize stock on shelves taking weights into consideration
- Reduce frequency of sub-standard/poor quality materials
- Purchase materials in bulk containers
- Redesign packaging to include handles
- Store materials in areas that are easy to access

Environment:

- Organize workstation to enhance interactions
- Redesign workstation layout to provide space for movement and required tasks
- Improve housekeeping
- Comfortable working temperature
- Provide anti-fatigue matting

Human:

- Training including:
  - Signs and symptoms of MSDs
  - 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
- Support for early reporting of concerns
- Personal protective equipment (in-soles, knee pads, anti-vibration gloves)
- Production pressures and demands

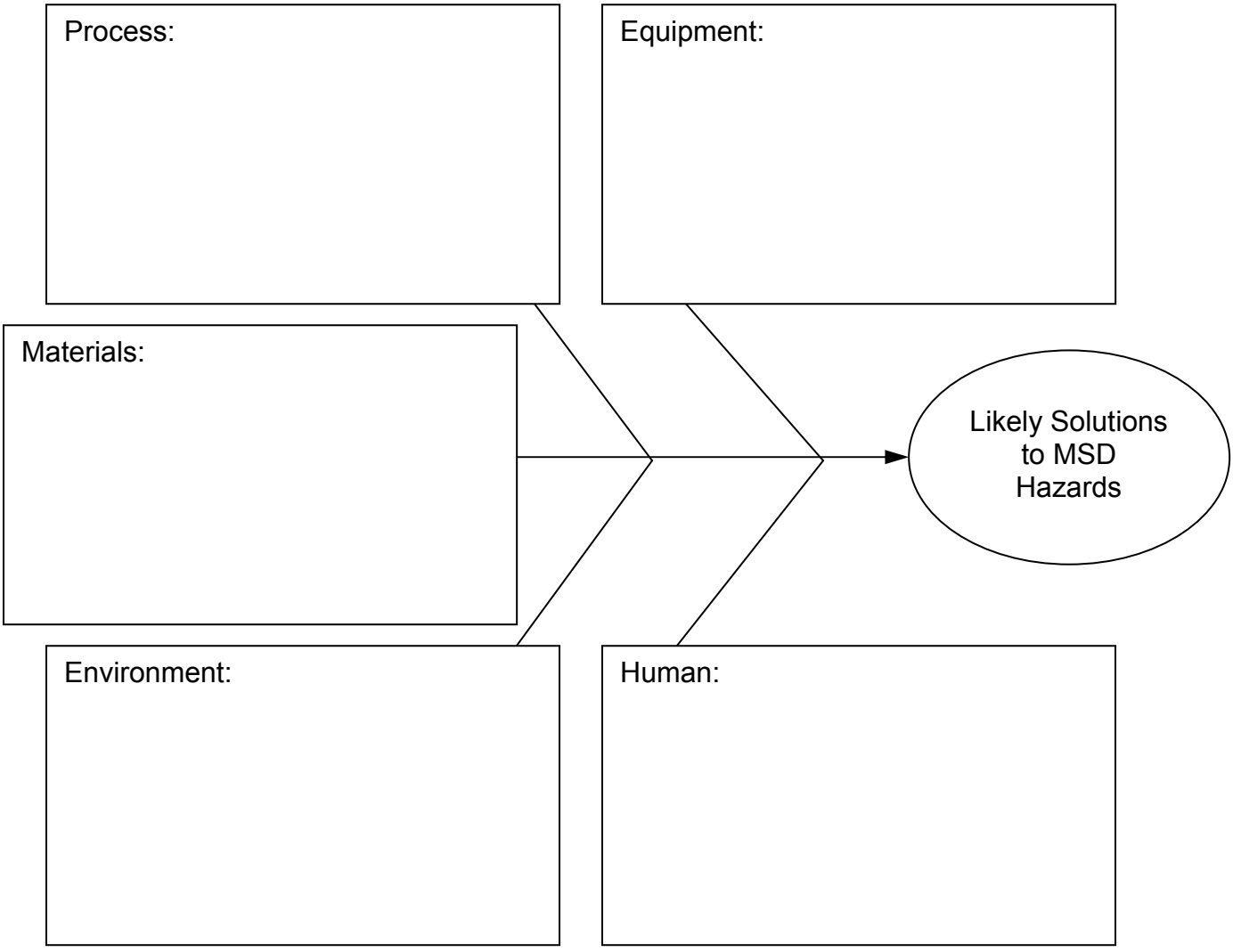
Developing Solutions Worksheet – Form 3A

Ergonomic Team Member Name: _____ Date: _____

If agreement on hazard control(s) is not reached by the Supervisor and the Ergonomic team, an In-Depth Risk Assessment may be required. In which case, a referral must be sent to the University of Western Ontario Ergonomic Specialist. See Form 2C. Results to be reviewed by upper management for further discussion.

For further information refer to the MSD Prevention Program Workbook:
http://www.uwo.ca/humanresources/facultystaff/h_and_s/rehab/ergonomics/index.htm

What is the MSD hazard we are concerned about? _____



The University of Western Ontario
MSD Prevention Program
Selected Control(s) Summary: Project List – Form 3B

Area: _____ Date: _____

Provide a copy of this Project List to the Unit Manager/Supervisor of the area for discussion and implementation of the recommended hazard controls to prevent MSDs.

1) Concern:
Solution: (i)
Follow up completed on:

2) Request:
Solution: (i)
Follow up completed on:

3) Concern:
Solution(s): i)
Follow up completed on:

4) Concern:
Solution: (i)
Follow up completed on:

5) Concern:
Solution: (i)
Follow up completed on:

6) Concern:
Solution: (i)
Follow up completed on:

7) Concern:
Solution: (i)
Follow up completed on:

8) Request:
Solution: (i)
Follow up completed on:

One Minute Worker Feedback Survey – Form 4A

The One Minute Worker Feedback Survey is a tool used to collect and document workers' feedback on MSD hazard controls that have been implemented. The supervisor/manager should distribute the survey to workers who have used the control. The survey allows workers 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.

One Minute Worker Feedback Survey – Form 4A

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, disadvantages, etc. of this change and provide any suggestions you might have for further improvement.

Job Description: _____

MSD Hazard Control/Improvement: _____

1. 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**

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

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

4. Do you have any suggestions for control/improvement?

MSD Prevention Process