

Preventing MSI Injury: Involving the Hands-on Experts for Real Solutions

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Preventing MSI Injury: Involving the Hands-on Experts for Real Solutions

This presentation will describe:

- 1. WHY a Participatory Ergonomics Approach is needed**
- 2. WHAT is needed to begin a Participatory Ergonomics Approach**
- 3. HOW to support a Participatory Ergonomics Approach**
- 4. WHAT a Participatory Ergonomics Approach can achieve**

1. WHY Participatory Ergonomics is needed

“Where do I start?”

- I don't want my people to get hurt**
- I want to reduce MSI risk in my workplace**

- ❖ What the legislated requirements are for the prevention of musculoskeletal injuries**
- ❖ What is happening with lost-time claims for musculoskeletal injuries in BC**
- ❖ What is “typically” done for musculoskeletal injury prevention**

Legislated Requirement for MSI Prevention

OHS Regulation Part 4: General Conditions

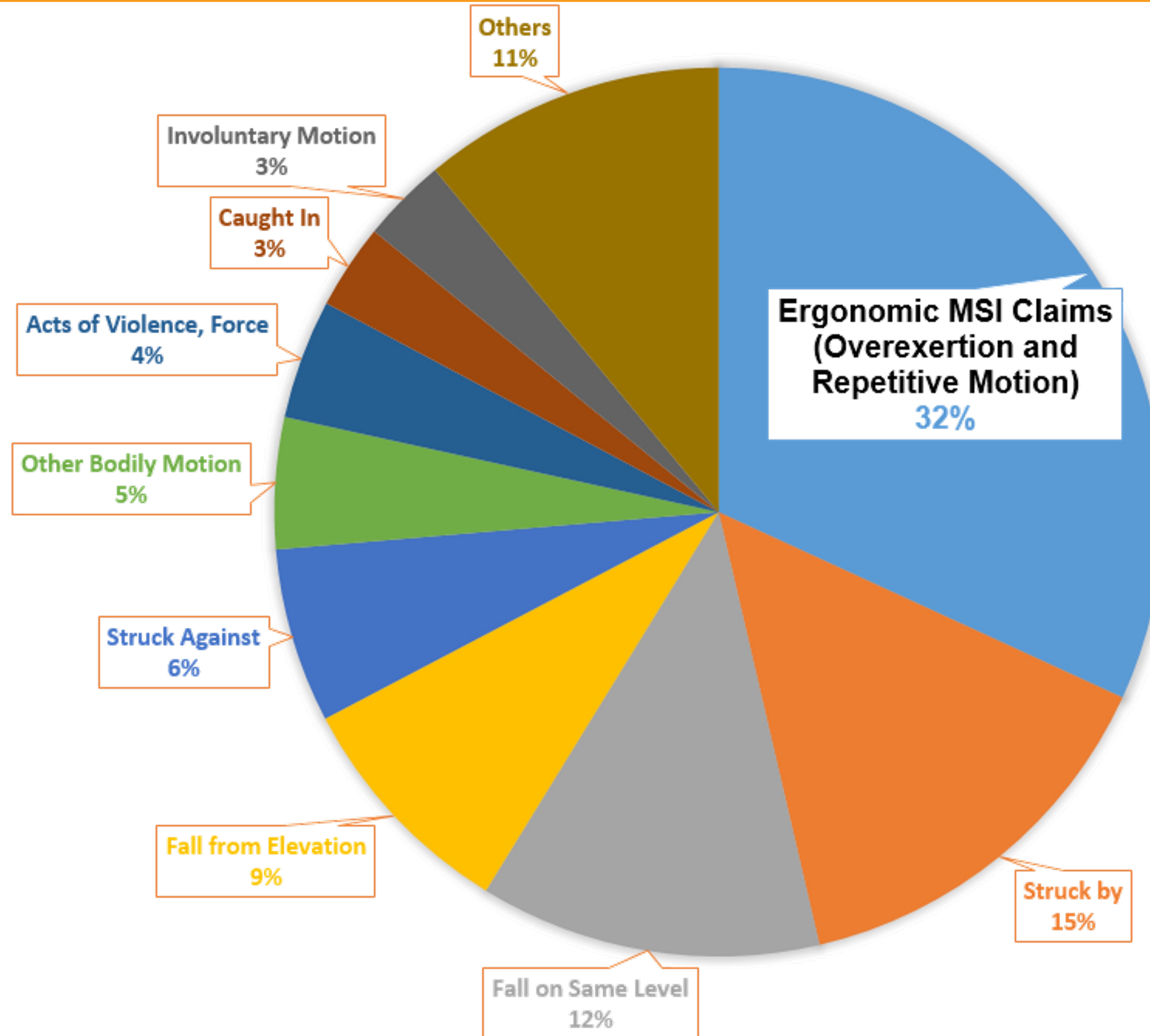
The Ergonomics (MSI) Regulation

The purpose of Sections 4.46 to 4.53 is to

Eliminate or, if that is not practicable, minimize the risk of musculoskeletal injury to workers

The good news is that musculoskeletal injuries are preventable

Musculoskeletal Injury Claims in BC

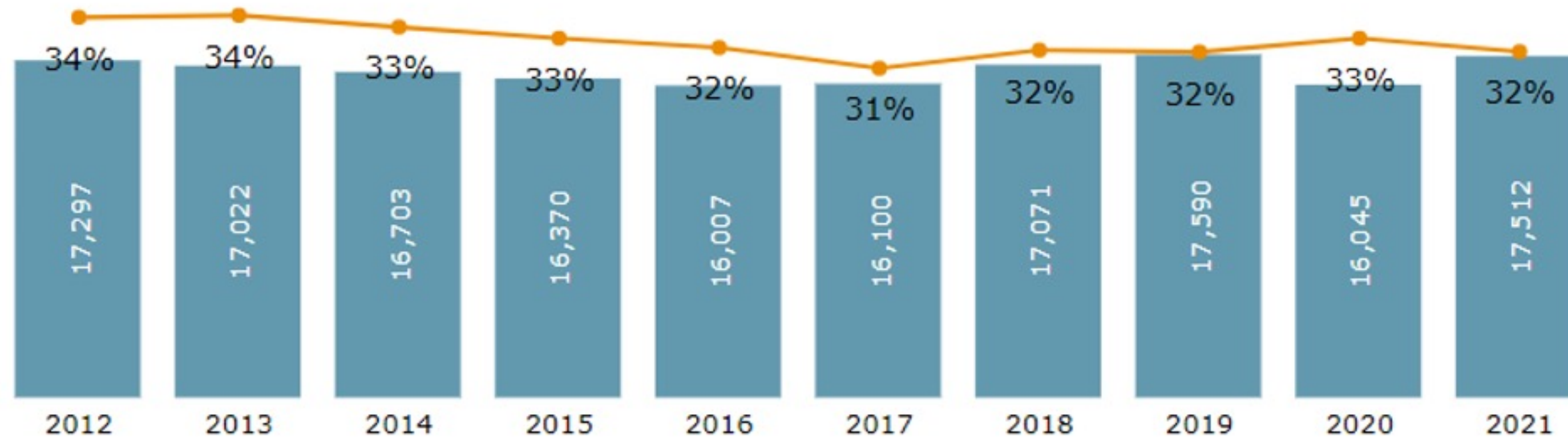


Largest single source of lost-time claims

Musculoskeletal Injury Claims in BC

First Paid MSI Claims

● Claim Counts ● Claim Percentage



Observation:

- MSI claim counts and % of claims have remained **at the same level for 10 years**

Ergonomics Perspective: A change in approach is needed to reduce MSIs in the workplace

Legislated Requirement for MSI Prevention

Ergonomics is Participatory

4.53 Consultation

- (1) The employer **must consult** with the joint committee or the worker health and safety representative, as applicable, with respect to:
 - (a) risk identification, assessment and control;
 - (b) the content and provision of worker education and training;
 - (c) the evaluation of the compliance measures taken.
- (2) The employer must, when performing a risk assessment, **consult with:** (a) **workers** with signs or symptoms of MSI, and
 - (b) **a representative sample of the workers** who are required to carry out the work being assessed.

Is there a communication GAP about MSI Controls?

Welder

Summary of risk

	Low risk	Moderate risk	High risk	Contributing risk factors
Gripping force	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Repetitive use of grinders, hand tools, holding welding stinger etc
Lift/lower force	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lifting of materials for fabing, flanges, piping for fit up if under 60 pounds not constant and there is mechanical means if necessary
Repetition	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	welders tend to repeat the same tasks/steps throughout the day on a recurring basis for 12 hour days
Awkward posture	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	welders are usually in awkward positions whether standing, sitting or kneeling alot of neck bending , as well as weight of welding helmets that can add strain
Contact stress	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	welders do experience local contact stress more of pressure by using power toll triggers on grinders/power tools and opening/closing of there stingers etc
Hand-arm vibration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	High use of power tools, repitive tasks grinding, buffing, hammering, die grinders

Notes and observations on controls:

- Plan ahead to minimize material handling or manual lifting.
- Rotate tasks and ensure proper planning is completed, use alternate means / tools when possible.
- Use handles or hand holds that are most comfortable and provide best grip.
- Use tools that are low torque.
- Use proper tools and equipemtn for the task being performed.
- Design work methods and practices to address MSI Risk
- AlwaysTake stretch breaks throughout the day to relieve discomfort and get the muscles moving.
- Use auto-darkening lenses that darken as soon as the arc is struck. These lenses eliminate the need to repeatedly open and close your helmet, and reduce neck strain.
- Use mechanical lifting equipment whenever you can, particularly when loading or unloading material. Dont life if you dont have to.

2. What is needed to begin Participatory Approach

Need a firm foundation:

- ❖ Management Involvement**
- ❖ Employee Consultation**
- ❖ Joint H&S Committee/Ergonomics Sub-Committee**

Ergonomics Sub-Committee needs to know:

- 1) 8 Steps in Participatory Ergonomics Approach**
- 2) Factors associated with risk of MSIs**
- 3) Total Work System (PEM PEM)**
- 4) Most important component in the Total Work System**
- 5) Hierarchy of Controls**

Provide Ergonomics Sub-Committee with

1) 8 Steps in the Participatory Ergonomics Approach

- ❖ STEP 1 – Understand the concerns of the workers
- ❖ STEP 2 – Consider the ergonomics risk factors
- ❖ STEP 3 – Consider the total work system
- ❖ STEP 4 – Identify interventions
- ❖ STEP 5 – Rank the possible interventions
- ❖ STEP 6 – Implement the most feasible interventions
- ❖ STEP 7 – Evaluate the effectiveness of the changes made
- ❖ STEP 8 – Continue the Participatory Ergonomics Process

Remind the Ergonomics Sub-Committee about

Factors associated with risk of MSI:

Physical Demands

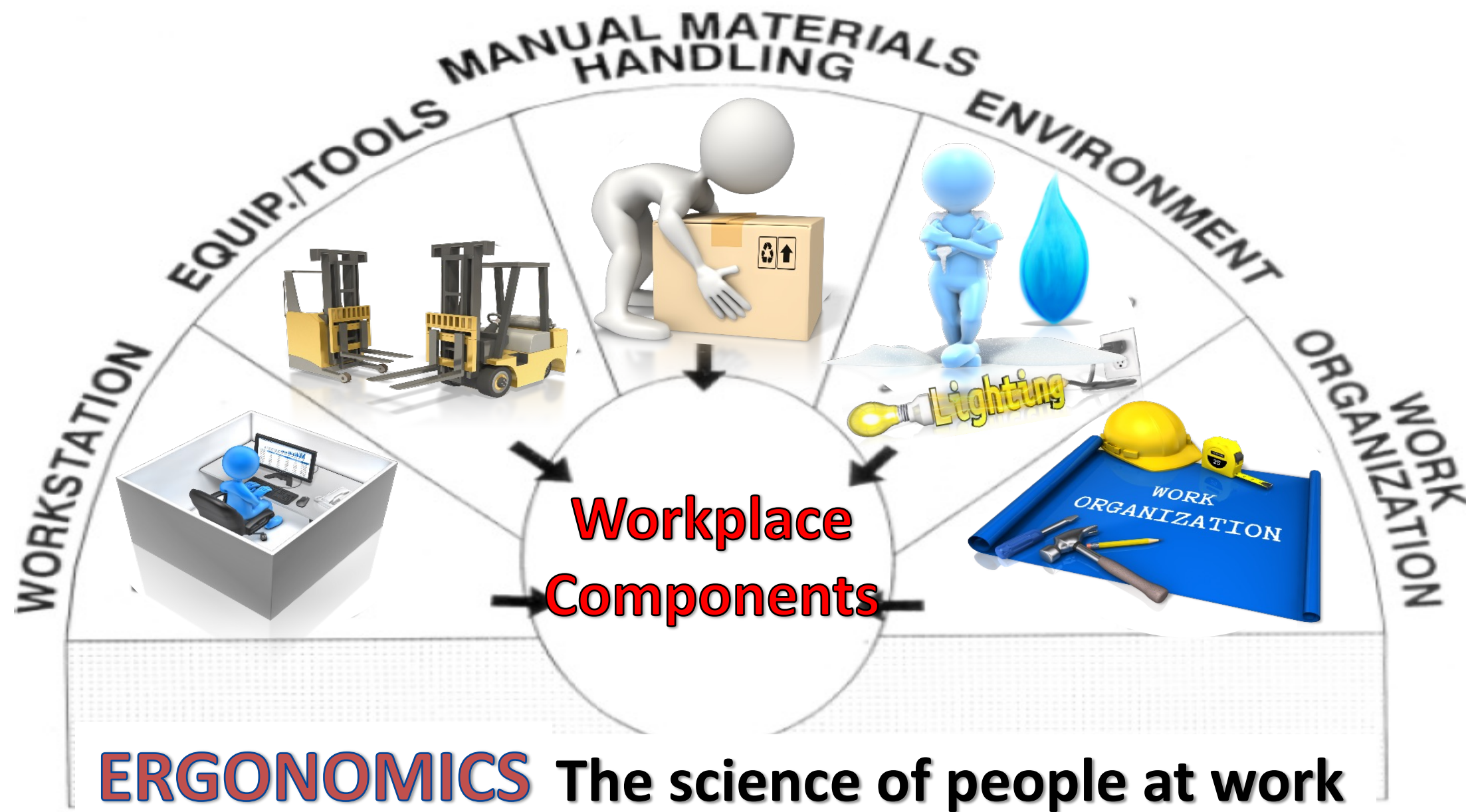
- **Section 4.49 (a)**
- (i) force required,
- (ii) repetition,
- (iii) duration,
- (iv) work postures,
- (v) local contact stresses;

Contributing Risk Factors

- **Sections 4.49 (b) to (e)**
- (b) layout and condition of the workplace or workstation
- (c) characteristics of objects handled
- (d) environmental conditions
- (e) characteristics of the organization of work

Remind the Ergonomics Sub-Committee about

3) Total Work System (PEM PEM):



Ask the Ergonomics Sub-Committee to identify

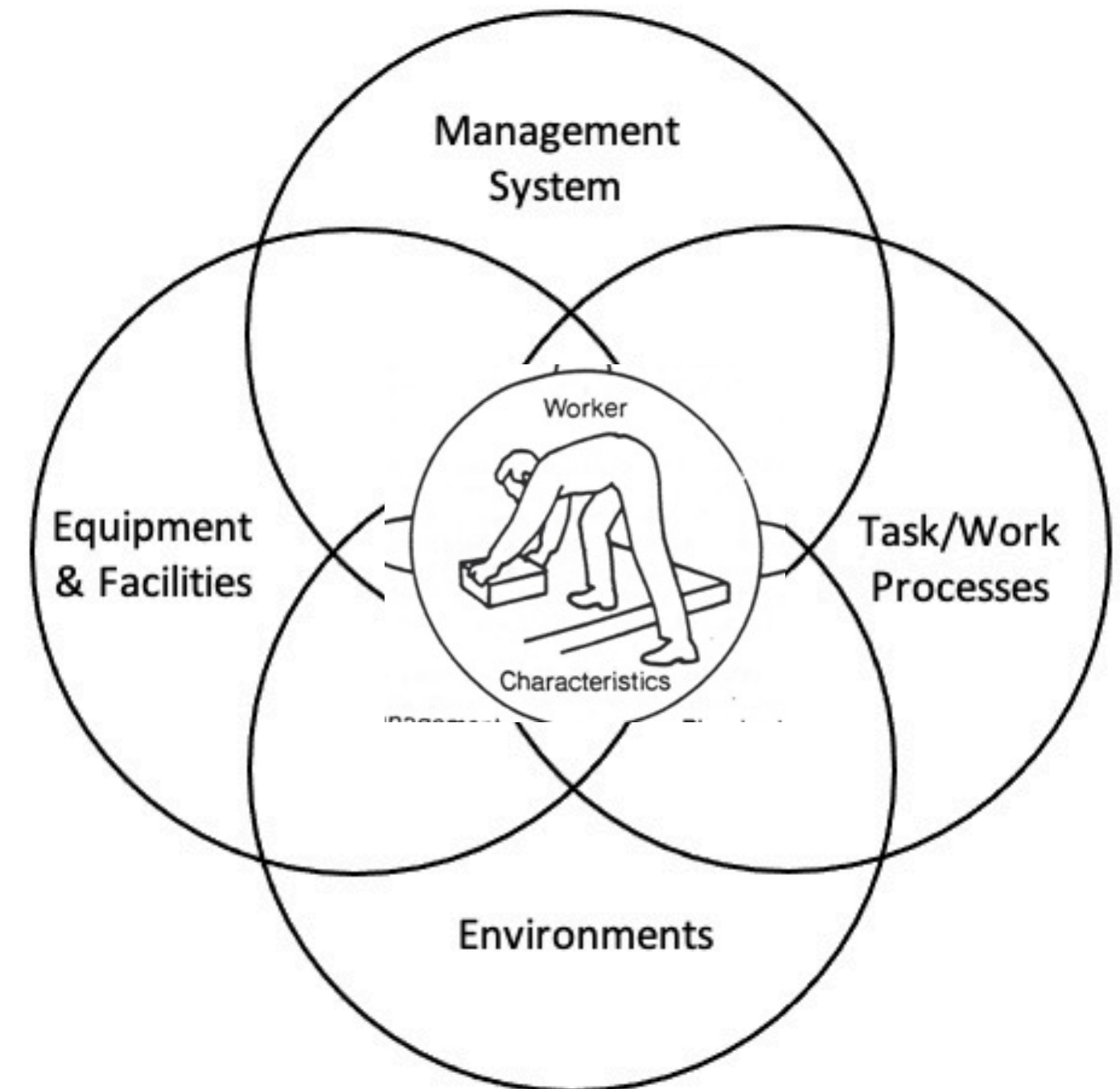
4) Most important component in Total Work System

❖ **Tasks / Work Processes**

❖ **Equipment and Facilities**

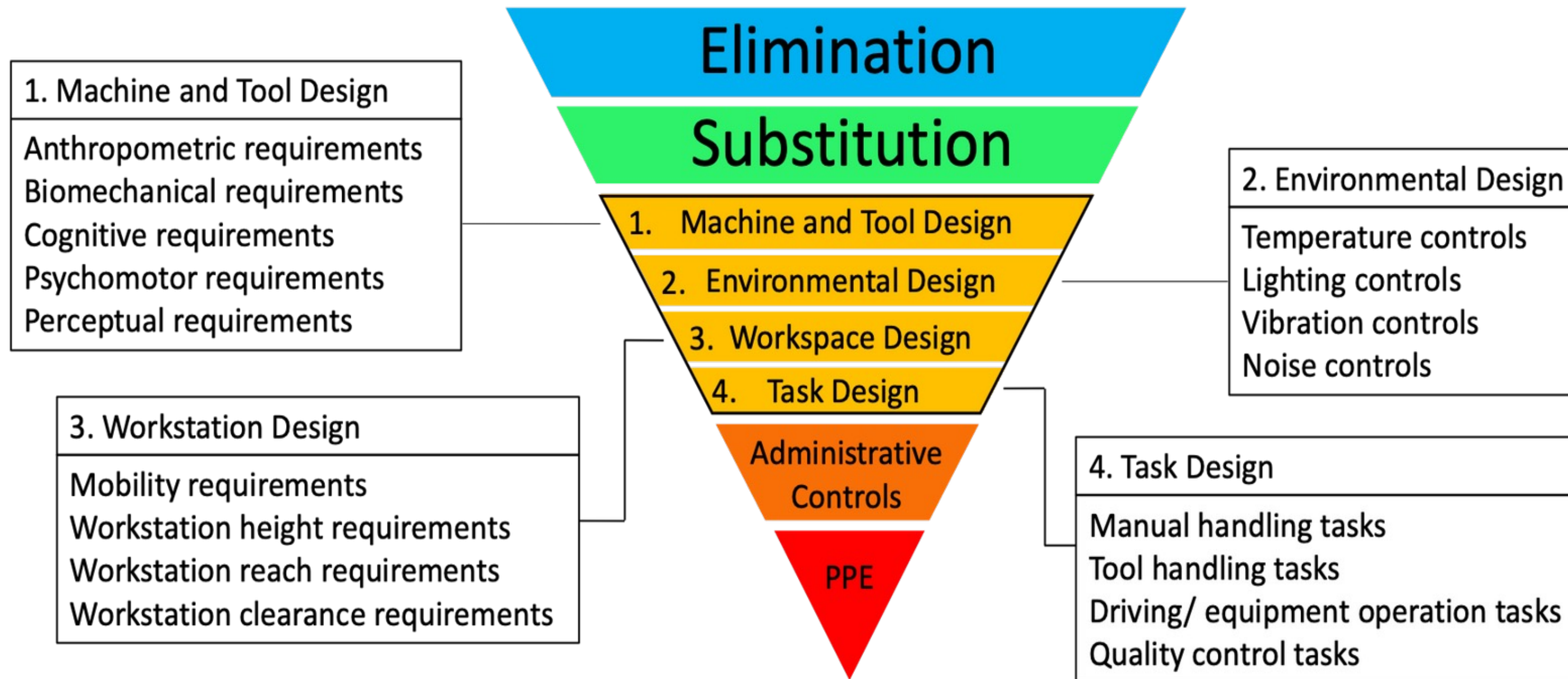
❖ **Environment**

❖ **Management System**



Remind the Ergonomics Sub-Committee about

5) The Hierarchy of Controls



3. How to support a Participatory Approach

- ❖ **STEP 1 – Understand the concerns of the workers**
- ❖ **STEP 2 – Consider the ergonomics risk factors**
- ❖ **STEP 3 – Consider the total work system**
- ❖ **STEP 4 – Identify interventions**
- ❖ **STEP 5 – Rank the possible interventions**
- ❖ **STEP 6 – Implement the most feasible interventions**
- ❖ **STEP 7 – Evaluate the effectiveness of the changes made**
- ❖ **STEP 8 – Continue the Participatory Ergonomics Process**

How to support a Participatory Approach

❖ **Workers are a key source of information about the demands of the job, the potential MSI hazards, and have suggestions on fixing it.**



Are workers actively involved in the process?



Is there an appropriate and effective system for employees and their supervisors to raise health and safety concerns?

How to support a Participatory Approach

STEP 1 – Involve the Workers!

Consultation with workers, maintenance staff, engineers and procurement

Ask the Workers:

- ❖ What work tasks they are doing that make them think twice about coming to work
- ❖ What jobs they are doing that make them feel stiff and sore



How to support a Participatory Approach

STEP 4 – Identify interventions

Develop Action Plans

- ❖ Workers have creative ideas on interventions that will make the work tasks easier for them to do
- ❖ Use their ideas to develop an Action Plan for that activity

Action Priorities for MSI Prevention in Electrical Department

*AP#24-04: Pre-drilling holes during frame fabrication

- Identified in Participatory Ergonomics Meeting #1 (March 28, 2024)

Body Part Discomfort mentioned by participants:

- Upper extremities (hand, wrist, arms, shoulders, and neck)

Description:

Workers drill many holes prior to installing various items on the trailer frame.

Step 1) Understand the concerns of the workers.

There are numerous holes that need to be drilled prior to installing items on the trailer frame.

Step 2) Consider the ergonomics risk factors.

The risk factors are force, repetition and awkward posture.

Force is applied when drilling into the metal frame and when holding the drill.

Repetition occurs given the number of holes that need to be drilled on each metal frame.

An **awkward posture** of the hands, wrist, arms, shoulder and neck occurs when drilling holes prior to installing items on the trailer frame.

Step 3) Consider the total work system.

The trailers manufactured at K-Line trailers are a customized product. This results in holes being drilled in different locations of each trailer frame. However, it might be possible for some of the holes to be pre-drilled during the fabrication process. The pre-drilling of some of the holes would reduce the total number of holes that workers need to drill. This would reduce the risk of the workers developing musculoskeletal injuries.

Step 4) Identify interventions.

- Ask the Engineering Department to determine if there are any holes that can be pre-drilled during the fabrication of the trailer frame.

How to support a Participatory Approach

Action Plans:

- ❖ number sequentially (e.g., AP#24-04)
- ❖ specify the intervention (Pre-drilling holes during frame fabrication)
- ❖ provides a description of concerns
- ❖ mentions workers concerns (Step 1)
- ❖ lists risk factors (Step 2)
- ❖ considers Total Work System (Step 3)
- ❖ identifies interventions (Step 4)

Action Priorities for MSI Prevention in Electrical Department

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How to support a Participatory Approach

Perspective on Interventions and Controls

- ❖ Recommendations provided to Supervisor and/or Manager
- ❖ Some interventions can be implemented immediately (especially for obvious concerns)
- ❖ Some interventions require the manager to cover the cost (often many of the identified interventions are low cost)
- ❖ Some interventions are **hard to implement**

How to support a Participatory Approach

Hands-on experience with the Participatory Approach

Plan-Do-Check-Act for Continuous Improvement

- ❖ **STEP 5 – Rank the possible interventions**
- ❖ **STEP 6 – Implement the most feasible interventions**
- ❖ **STEP 7 – Evaluate the effectiveness of the changes made**
- ❖ **STEP 8 – Continue the Participatory Ergonomics Process**

WSBC support for Participatory Approach

WorkSafeBC's role:

- ❖ **24/02/28 Occupational Hygiene Officer request for Ergonomist to help**
- ❖ **24/03/06 Company's OHS Coordinator not sure how to proceed**
- ❖ **24/03/08 Participatory Ergonomics 8 Steps sent**
- ❖ **24/03/28 WSBC Ergonomist at worksite to attend 1st meeting of Strain Reduction Team**

WSBC support for Participatory Approach

For inaugural Strain Reduction Team meeting

- ❖ Ergonomist provided information to Team**
- ❖ Workers and management described their MSI-related issues**
- ❖ Ergonomist provided minutes outlining the issues identified by the Strain Reduction Team**
- ❖ Ergonomist developed Action Plans providing ergonomics perspective on comments received**

Strain Reduction Team ran the next meetings

4. What a Participatory Approach Can Achieve

The Hands-on Experience

Richard Cramond

OHS Coordinator,
K-Line Trailers Ltd.



Strain Reduction Teams (SRT)

- Air & Electrical Department
- Box Department

What a Participatory Approach Can Achieve

Meeting # 1 of Strain Reduction Team

Lower extremities (back and knees)

- **Contact stress** when kneeling on metal supports when working on top of trailer frame.
- Rubber pads marking finished (painted) surface of metal frame.
- Using bench as a step to assist with getting up on trailer frame.
- Locating bench is difficult when getting down from top of trailer frame.
- On some days **kneeling constantly** to work under supported trailer frame.
- **Awkward body position** when drilling holes.

Upper extremities (hand, wrist, arms, shoulders, and neck)

- **Height of trailer** when reaching over frame while standing on floor.
- Position of hand/arm/shoulder **when working on creeper** under trailer frame.
- **Awkward position** of hand/arm/shoulder when drilling holes.

Participatory discussion on possible controls (STEP 4)

- Are ladders needed in each bay?
- Investigate use of support on which workers can kneel
- Process for maintenance of non-functioning welding machine.
- Can Engineering include pre-drilled holes during frame fabrication process?

What a Participatory Approach Can Achieve

Action Plan #24-04: Pre-drilling holes during frame fabrication

Step 1) Understand the concerns of the workers

There are numerous holes that need to be drilled to install items on the trailer frame.

Step 2) Consider the ergonomics risk factors

Force is applied when drilling into the metal frame and when holding the drill.

Repetition occurs given the number of holes that need to be drilled on each metal frame.

An **awkward posture** of the hands, wrist, arms, shoulder and neck occurs when drilling holes prior to installing items on the trailer frame.

Step 3) Consider the total work system

The pre-drilling of some of the holes would reduce the total number of holes that workers need to drill. This would reduce the risk of the workers developing musculoskeletal injuries.

Step 4) Identify interventions

Ask the Engineering Department to determine if there are any holes that can be pre-drilled during the fabrication of the trailer frame.

What a Participatory Approach can achieve

Meeting # 2 of Strain Reduction Team (SRT only)

AP-24-04: Risk Factors to Reduce Arm Wrist Risk Factors.

Discussed possible ways to minimize holes drilled. Customization prevents a lot of pre-drilling. Solutions to be explored:

- Install studs before Paint. Casey to acquire Paint Schedule and assess trailer stud set-up in Chassis and Lowbed. Casey to work with Josh & Tyler to commence by May 1.
- Drill bits to be better sharpened: Richard to ensure sharpened drill bits are as good as possible by May 1
- Hostler valve bracket cut-out. Casey and Tony to assess tandem jeeps and single axle boosters to learn whether a cut-out is possible by May 1 to eliminate drilling.
- Re-work due to incorrect fasteners: Trailers are arriving in A&E without the anti-vibration fasteners requiring re-work. Richard to work with Josh & Tyler to ensure correct fasteners are used.

What a Participatory Approach can achieve

Interventions evaluated by Strain Reduction Team

Lower extremities (back and knees)

- Using bench as a step to assist with getting up on trailer frame.
- Locating bench is difficult when getting down from top of trailer frame.

Upper extremities (hand, wrist, arms, neck)

- Height of trailer when reaching over frame while standing on floor.

Process

Are ladders needed in each bay?



What a Participatory Approach Can Achieve

Interventions evaluated by Strain Reduction Team

Lower extremities (back and knees)

On some days kneeling constantly to work under supported trailer frame.

Upper extremities (hand, wrist, arms, neck)

Position of hand/arm/shoulder when working on creeper under trailer frame

Process

Investigate use of support on which workers can kneel



What a Participatory Approach Can Achieve

Strain Reduction Team in Box Department

Intervention evaluated



What a Participatory Approach can achieve

Strain Reduction Team in Box Department

Interventions evaluated and improved



What a Participatory Approach Can Achieve

Strain Reduction Team in Box Department

Interventions evaluated



5. SUMMARY

A Participatory Ergonomics Approach

1. Identifies interventions to reduce MSI risk.
2. Increases worker involvement and buy-in.
3. Usability testing of components in the Work System.
4. Recommendations carry more weight; collective, sub-Committee recommendations carry more weight than individual decisions.
5. Reduced purchasing errors
6. Consistent with WorkSafeBC's approach for MSI prevention
7. Supports psychological health and safety



- Geoff Wright, Ergonomist, WorkSafeBC
- Richard Cramond, OHS Coordinator, K-Line Trailers Ltd.



Resources to support Participatory Ergonomics

A Practitioner's Perspective on adding an SMS approach to the Participatory Ergonomics Process

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KEY WORDS: participatory ergonomics, safety management system, ergonomics interventions, on-going process, priority action plan

Over time, ergonomic interventions can lose their effectiveness because of a subsequent change in the total work system. To remedy this, a component from the P-D-C-A approach used in a Safety Management System was added to the Participatory Ergonomics Process (PEP) when a new Team (Ergonomics Field Intervention Group) was formed within the City of Vancouver's Park Board. One tool used to ensure that the PEP process continued on an on-going basis was the use of a Priority Action Plan. It lists the action the EFIG had recommended for various pieces of equipment and shows the date by which the identified action should be completed. The Priority Action Plan was reviewed, updated and modified at every EFIG meeting. It was found that adding the step of continuing the EFIG process assisted in identifying unexpected changes. It is concluded that adding a step used in a Safety Management System provided an on-going process to assist in the identification of unexpected changes and resulted in the more effective implementation of ergonomics interventions achieved from a Participatory Ergonomics Process.

Can MSI Worksheets be Enhanced?

Geoffrey R. Wright⁽¹⁾ and Liam Smith⁽²⁾

(1) Ergonomist, Prevention Services Division, WorkSafeBC | (2) Safety Specialist, Workplace Safety, City of Vancouver

Purpose

The goal was to develop and evaluate a web-based prototype of an interactive MSI Worksheet. The name used to describe the interactive Worksheet is "ErgoCheck".

Context

MSI claims

In B.C. the MSI claim count and claim percentages have remained almost at the same level for 10 years – between 31% and 34% (Figure 1).

Knowing that MSI claims have been at the same level for over 10 years is a reason for deciding that some additional user-friendly and useful MSI tools are needed.

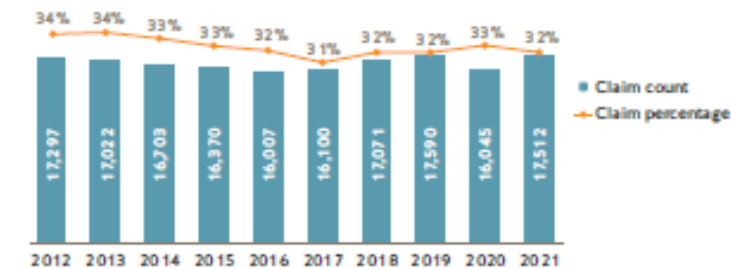


Figure 1: The MSI claim count and the percentage of claims in B.C. from 2012 to 2021.

Development of ErgoCheck

The initial version of ErgoCheck was developed by Liam Smith and Geoff Wright while both were employed at the City of Vancouver.

In September 2021, Geoff Wright became an employee at WorkSafeBC. On February 7, 2022, a legal document was signed by the City of Vancouver agreeing to the further development of ErgoCheck by WorkSafeBC.

Outcomes



Scan the QR code to access ErgoCheck

ErgoCheck

ErgoCheck asks the user a series of questions about situations where MSI hazards could be present in their workplace. The survey questions are comprised of 6 parts.

The priority ranking for each activity where there is an identified MSI risk factor is determined by a standard "Risk Assessment Matrix" (likelihood of the activity occurring and the level of discomfort/injury). The value assigned to the respondent's answer is based on an ergonomist's professional opinion on the likelihood of that activity being associated with the risk of musculoskeletal discomfort or injury and the corresponding level or severity of the injury corresponding to that activity.

ErgoCheck generates an MSI Risk Factor Report that identifies, categorizes, and scores the five primary MSI risk factors.

Relevant text is also populated in a risk identification table. For example, if a user answers "Frequently" to the question of "How much total time do you lean or rest on sharp objects or edges?" the risk identification table would populate "Frequent exposure with sharp edges/objects" in the "Action Needed" group.

There is also an Overall Musculoskeletal Risk (OMR) score calculated for each of the five factors with associated "Risk Priority Statements".

Development of ErgoCheck

The initial version of ErgoCheck required a two-step process since the answers provided had to be manually transferred to the Excel file for analysis and generation of the reports.

The beta version of ErgoCheck was revised to include key user feedback and to incorporate the WorkSafeBC brand. Questions were reworded to be clearer and more accurate.

WorkSafeBC's Experience Design department conducted a second phase of focus group testing involving prevention officers and employers. Additional improvements to the beta version of ErgoCheck were added.

As was the case with the other focus groups, the number of employers, supervisors, and workers who participated in the testing of the latest beta version of ErgoCheck and who submitted the follow-up survey was small.

Discussion

The development of ErgoCheck

The purpose of creating the alpha version of ErgoCheck was to demonstrate how the process for identifying common hazards and assessing the risks associated with musculoskeletal injuries could be automated. Both authors were aware of the limitations inherent in using Excel, but this initiative was considered the first step in demonstrating how a web-based tool that would assist employers and workers could be developed.

Focus group comments about ErgoCheck

The focus groups provided many suggestions for enhancements. Their suggestions and recommendations provide valuable insights and considerations in the development of a musculoskeletal injury prevention tool and deserve additional comment and discussion.

a) Industry-specific information

One focus group recommended more generic images and industry-specific versions based on the user-specified role or the identified industry. Another focus group also expressed interest for industry-specific versions. The suggestion of industry-specific enhancements is reasonable.

Implementation of this request goes beyond the current scope of the ErgoCheck initiative since it requires the commitment of additional resources. It would be appropriate to implement industry-specific content as enhancements once a basic tool has been released.

b) Actionable measures and tips

Once a basic web-based version was developed, discussions with the platform developer started regarding how WorkSafeBC staff could add appropriate links easily. Enabling WorkSafeBC to add links was considered the best plan since it would allow adding and maintaining the links to its library of educational and instructional materials and tools.

For example, MSI specific publications and MSI tools are available at [worksafebc.com](https://www.worksafebc.com). Find publications by searching "Ergonomics". Find MSI tools such as Lift/Lower Calculator and Push/Pull/Carry Calculator.

c) Focused on one task and one person

The participants taking part in the beta Concept Test did not receive any instruction or information about what ErgoCheck does — or what it can do. The focus-group comments show the need to develop an informational booklet on the ways ErgoCheck can be used.

While ErgoCheck can process data provided for a general job category, it is structured to identify, evaluate, and compare the MSI risk factors associated with a duty, task, or work activity.

The concern about only reflecting one worker's perspective can be resolved by asking other workers who perform the same assigned work task to complete the ErgoCheck survey. Combining the individual reports would highlight the similarity in the risk factors present when performing the work.

d) Language

Producing the ErgoCheck survey questions in the user's preferred language is easier than translating the generated report. The important (and cost-saving) point to note is

that it may only be necessary to translate the questions. Once a question in the user's preferred language is answered, their response is captured and the report generated. Although it is not an ideal situation, an individual user should be able to locate an individual who can translate the written report for them.

e) Assessment by an expert

Most employers and workers would prefer an assessment by an expert. However, WorkSafeBC does not have the resources or the mandate to provide this level of support to employers and workers.

After the latest version of ErgoCheck had been used, a follow-up assessment was conducted. It was found that the information provided helped determine which issues to focus on. The ErgoCheck report enhanced the level of communication between the employer, the workers, the WorkSafeBC occupational health and safety consultant and the WorkSafeBC ergonomist.

ErgoCheck was developed for use by workers, supervisors, and employers. While it was not developed for WorkSafeBC officers to use directly, the officers would likely be interested in seeing and discussing the results of a report generated by a worker or employer.

f) Reluctance to share results

It is interesting that the survey respondents were more likely to share the results with their co-workers rather than their supervisor or their Joint Health and Safety Committee. This outcome is more of a comment about the culture of safety within the organization than a limitation of ErgoCheck.

A Participatory Ergonomics Process plays a key role in achieving effective ergonomics interventions (Wright, 2017). It is important to involve senior leadership, joint committees, and workers in the process (WorkSafeBC, 2023). The important components for this process are management commitment and worker participation.

ErgoCheck was developed to support and enhance the communication about MSI risk between supervisors and workers and support the discussions on the need for interventions to control MSIs between a supervisor and employer.

Case study to practice summary

The advantage of an interactive MSI Worksheet is that it immediately engages employers, supervisors, and workers. It provides instant and objective findings on MSI risks, and supports fact-based conversations between safety officers, employers, and workers. It also increases awareness and education on MSIs, especially for young and new workers. Once developed beyond its current identification and assessment stage, ErgoCheck would link to relevant WorkSafeBC publications.

While ErgoCheck is currently more tailored towards workers who engage in manual labour, it could eventually be used to assess worker-specific industries such as construction, manufacturing, forestry, healthcare, and roles within an office environment.

Acknowledgement

A necessary and important piece in the development of ErgoCheck is the overall support provided by management at WorkSafeBC and the availability, enthusiasm, and commitment of WorkSafeBC's professional staff. The existence of these behind-the-scenes resources and the willingness of individuals, workers, and employers to participate in focus group and testing sessions and the platform developer (maru/matchbox®) were essential pieces in the development of ErgoCheck into its current form.

References

WorkSafeBC (2023). Enhancing Safety Culture. [Enhancing safety culture \(sharepoint.com\)](https://www.worksafebc.com/sharepoint.com)

Wright, G. R. (2017). A Practitioner's Perspective on adding an SMS approach to the Participatory Ergonomics Process. Presented at the 48th Annual ACE Conference & 12th International Symposium on Human Factors in Organizational Design and Management. Banff Centre for Arts and Creativity, Banff, Alberta July 31 to August 3, 2017.

ErgoCheck calculates and Prioritizes MSI Risk

Overall Musculoskeletal Risk:
Awkward Posture

OMR (1-4)

Notice

2.7

Likely risk of discomfort from awkward posture.

Warning - Actions Required	Warning - Consider Actions	Further Evaluation Required
<p>Continuous twisting of the upper body. Likely discomfort from arms frequently being outstretched. Known risk from extreme wrist posture (side to side).</p>	<p>Likely discomfort from leaning forward or backwards greater than 15 degrees. Wrist posture (up/down) at the limit of the recommended range of motion.</p>	<p>Likely discomfort from leaning forward or backwards greater than 15 degrees. Possible discomfort from supporting a weight up to 5lbs while arms frequently outstretched. Head position is not maintained in a neutral position.</p>

TIP: Determine if the workstation layout or some other factors are resulting in awkward postures. Remedial actions for awkward posture can include changes in workstation layout.

WorkSafeBC Resources

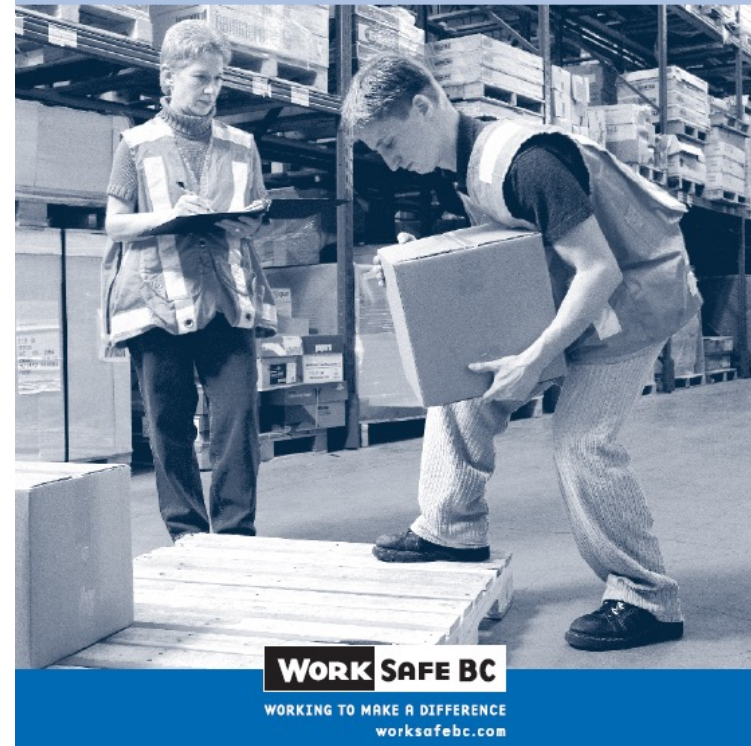
UNDERSTANDING THE RISKS OF MUSCULOSKELETAL INJURY (MSI)

An educational guide for workers on sprains, strains, and other MSIs

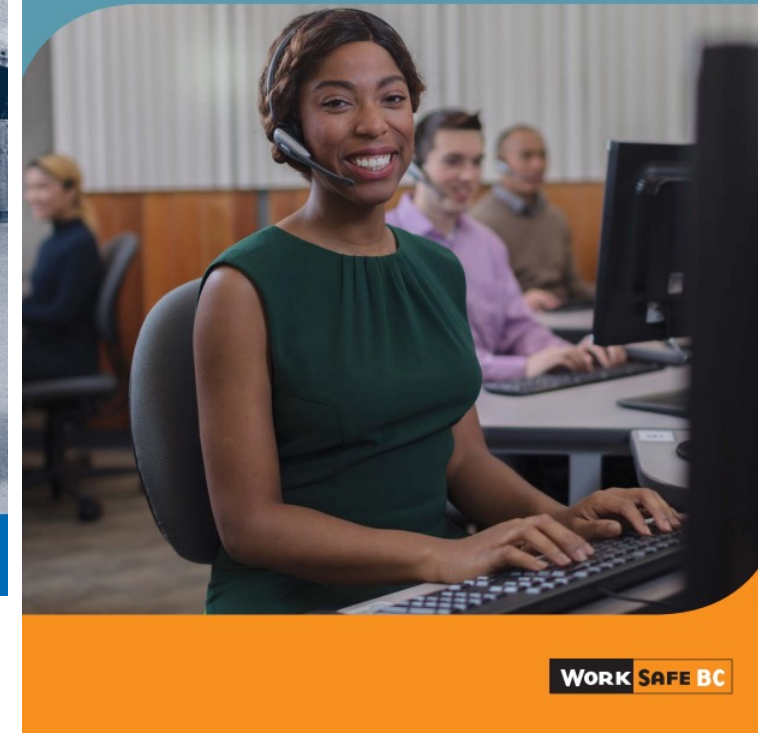


PREVENTING MUSCULOSKELETAL INJURY (MSI)

A guide for employers and joint committees

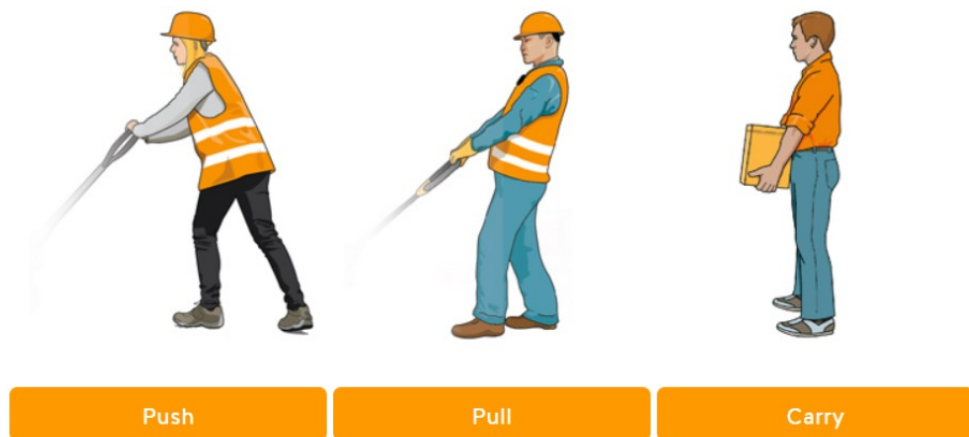


How to Make Your Computer Workstation Fit You



Push / Pull / Carry Calculator

Choose a load scenario



Use Pain / Discomfort surveys

Date ____/____/____/ Name: _____
 Facility: _____ Department #: _____ Job name: _____
 Shift hours worked/week: _____ Time on THIS job: _____ years _____ months

Your responses will remain confidential

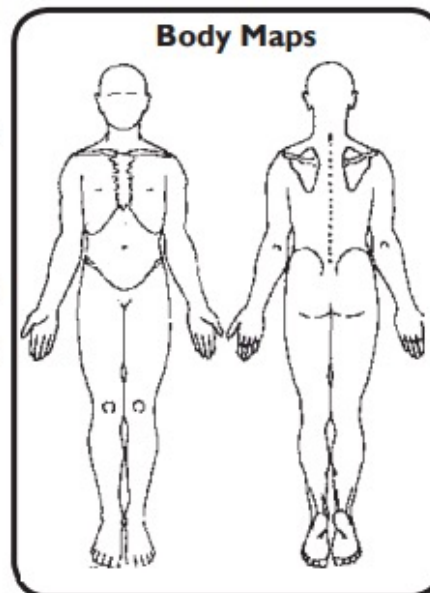
Other jobs you have done in the last year (for more than 2 weeks)
 Facility: _____ Facility: _____
 Department #: _____ Department #: _____
 Job Name: _____ Job Name: _____
 Time on THIS job: ____ years ____ months Time on THIS job: ____ years ____ months
 (If more than 2 jobs, include those you worked on the most)

Have you had any pain or discomfort during the last year? Yes No
 (If NO, stop here)

If YES, carefully shade in area of the drawing which bothers you the MOST. (Complete a separate page for each area that bothers you)

Circle Area:

Neck	Shoulder	Elbow/Forearm	Hand/Wrist
Fingers	Upper Back	Low Back	Thigh/Knee
Low Leg	Ankle/Foot		



1. Circle the word(s) that best describe your problem.

Aching	Numbness (asleep)	Tingling
Burning	Pain	Weakness
Cramping	Swelling	Other
Loss of Colour	Stiffness	

2. When did you first notice the problem? _____(month) _____(year)

3. How long does each episode last? (Mark an X along the line)

1 hour 1 day 1 week 1 month 6 months

4. How many separate episodes have you had in the last year?

5. What do you think caused the problem?

6. Have you had this problem in the last 7 days? ____ Yes ____ No

7. How would you rate this problem? (Mark and X on the line)

a. NOW

None _____ Unbearable

b. When it is the WORST

None _____ Unbearable

Thank you!

Geoff Wright, Ergonomist, WorkSafeBC

Richard Cramond, OHS Coordinator, K-Line Trailers Ltd.



WORK SAFE BC

Recommended Resources



Some optional training to further support theories and information shared today

01

COURSE | Ergonomics 101

Offered in-person and virtually as an e-Learning course, this course provides participants with the basic principles and concepts of ergonomics so that they understand the importance of ergonomics in the workplace.

02

COURSE | Ergonomics 102

Offered through e-Learning, this course builds on the fundamentals of ergonomics and assists managers, supervisors, and employees in implementing a musculoskeletal injuries/disorder reduction program.