PErforM

Participative Ergonomics for Manual Tasks
WORKSHOP AIM

Provide participants with knowledge and skills to facilitate manual tasks risk management in the workplace
## Resource material:

### Handouts
1. Presentation
2. Risk assessment tool
3. Implementation checklist
4. Example Risk Assessment

## Additional resources on USB:
1. PErforM Handbook
2. Risk management flowchart
3. Identifying HMT
4. One minute worker feedback
5. Posture examples
6. PErforM FAQ’s
7. Trainer resource manual
8. Performance indicators
OUTLINE

HMT overview

What is PErforM

Break

Risk assessment tool

Break

Controls

Keys to success
WHAT IS A HAZARDOUS MANUAL TASK

Means a task that requires a person to lift, lower, push, pull, carry or otherwise move, hold or restrain any person, animal or thing that involves one or more of the following:

(a) repetitive or sustained force
(b) high or sudden force
(c) repetitive movement
(d) sustained or awkward posture
(e) exposure to vibration.
WORK HEALTH & SAFETY REGULATION 2011

Clause 60 – Managing risks to health and safety

60 (1) A PCBU must manage risks to health and safety relating to a musculoskeletal disorder associated with a hazardous manual task.
In determining the control measures, the PCBU must have regard to all relevant matters, including:

(a) postures, movements, forces and vibration
(b) the duration and frequency of the HMT
(c) workplace environmental conditions
(d) the design of the work area
(e) the layout of the workplace
(f) the systems of work used
(g) the nature, size, weight or number of persons, animals or things involved in carrying out the hazardous manual task
Clause 61 – Safety by design

Duties of designers, manufacturers importers and suppliers of plant or structures

- Designed / manufactured to eliminate or minimise

- Provide and obtain information
CODE OF PRACTICE

Hazardous Manual Tasks Code of Practice 2011

- Guidance on how to manage risks related to manual tasks.

- Obligation holders must follow this way or follow a way that provides

- equal or a better level of protection.

- PErforM is one way that helps meet legislative requirements.
Musculoskeletal disorders (MSD) are injuries of the muscles, nerves, tendons, ligaments, joints, cartilage, or spinal discs.

MSD are caused by:

• manual tasks
• slips, trips and falls at level
• hitting and being hit by objects
MANUAL TASKS RELATED INJURIES

Single, one off exposure:
• due to max exertion or overload incident
• quite rare

Repeated exposure:
• variety of risk factors
• ongoing wear and tear
• more common
LIFTING TECHNIQUE TRAINING IS NOT ENOUGH!

- Evidence to date does not support lifting technique training on its own as a control for manual tasks risks
- Risk factors are not changed
CONSULTATION IS CRITICAL

• Are workers actively involved in the risk management process?

• Are they openly raising health and safety concerns and reporting problems promptly?

• Workers should be a key source of information about job demands and MSD hazards
WHAT IS PErforM

• Participative Ergonomics for Manual tasks

• Based on a participative ergonomics approach

• Simplified manual task risk management program

• Helps companies to involve their own people in solving their manual tasks problems

• It’s one way to meet legislative compliance.
WHERE DID IT COME FROM

Developers:
• Workplace Health & Safety QLD
• University of QLD
• Curtin University of Technology (WA)

Users of PErforM
civil construction, councils, bakeries, hospital, manufacturing, wholesaling, aged care, food processing, timber.
Benefits of Participatory Ergonomic Interventions

“Implementation of a participative ergonomics program remains the only evidence based method for the reduction of injuries associated with manual tasks”

Robin Burgess-Limerick PhD CPE (2012)


PErforM ELEMENTS

- Participation of workers and ‘others’
- Management commitment and support
- Site champion

Outcomes
- Control of manual tasks and risks
- Improved health, productivity and safety culture

Adapted from P. Vink et al. (2006). Applied Ergonomics. 537-546.
NO SPRAINS BIG GAINS

No sprains, big gains - WorkSafe Queensland
WHAT TASKS TO FOCUS ON

1. Survey to workers
   - What are the jobs that you go home from feeling a bit sore?
   - What jobs that you do are you most afraid of getting hurt from?
   - What are the jobs that you do involving manual handling that stop you wanting to come to work?

2. Hazard reports

3. Workers comp data

4. Observations

Rank tasks in order of priority for assessment
**PErforM RISK FACTORS**

<table>
<thead>
<tr>
<th>Regulation/Code of practice</th>
<th>PErforM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of a hazardous manual task</td>
<td>Direct risk factors</td>
</tr>
<tr>
<td>repetitive or sustained force</td>
<td>forceful exertions</td>
</tr>
<tr>
<td>high or sudden force</td>
<td></td>
</tr>
<tr>
<td>repetitive movement</td>
<td>repetition</td>
</tr>
<tr>
<td>sustained or awkward posture</td>
<td>awkward posture</td>
</tr>
<tr>
<td>exposure to vibration</td>
<td>vibration</td>
</tr>
<tr>
<td>*duration (identified in risk assessment)</td>
<td>duration</td>
</tr>
</tbody>
</table>
1. FORCEFUL EXERTIONS

Greater force - greater risk

Speed and jerk

Factors that increase effort

Forceful gripping
2. WORKING POSTURES

Awkward
• away from relaxed or neutral position

Static
• holding a position for a period of time
  • “sustained” means a posture or force is held for more than 30 seconds at a time.
3. MECHANICAL VIBRATION

Whole Body Vibration

Hand and Arm Vibration
4. DURATION

- Time taken to perform the task once or repeatedly without a break
- Amount of time exposed to a risk factor

Long Duration:
- Total of 2 hours over a whole shift
- Continuously for more than 30 minutes at a time
5. REPETITION

- Same movement over & over

- Work cycle = doing task once without interruption

- ‘Repetitive’ - a movement or force is performed more than twice a minute
### Worksheet 1—PErforM Risk Assessment Tool

**PErforM** - Participative Ergonomics for Manual Tasks

**Manual tasks risk assessment form**

<table>
<thead>
<tr>
<th>Date and Workplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
</tr>
<tr>
<td>Workplace:</td>
</tr>
</tbody>
</table>

**Risk assessors**

- Work unit/team:
- Positions:
- Names:

**Task description**

- Name of task:
- Why was this task selected:
- Location where task occurs:
- Who performs the task:

**General description:**

- Postures:
- Forceful/muscular exertions:
- Repetition and duration:
- Tools or equipment used:

**Work/task organisation and environment:**

© The State of Queensland (Department of Employment and Industrial Relations) October 2007, University of Queensland, Curtin University of Technology

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## RISK ASSESSMENT TOOL

<table>
<thead>
<tr>
<th>Exertion</th>
<th>How much force is the person using? – think about starting or stopping quickly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No effort</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Moderate force &amp; speed</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Maximum force or speed</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Awkward posture</th>
<th>How awkward is the person’s posture?</th>
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<tbody>
<tr>
<td>1</td>
<td>All postures comfortable</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Moderately uncomfortable</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Very uncomfortable</td>
</tr>
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<th>Vibration</th>
<th>How much are the whole body or hand(s) being vibrated?</th>
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<td>2</td>
<td>10 – 30 min</td>
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<td>30 min – 1 hour</td>
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</tr>
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<td>3</td>
<td>cycle time &lt;30s</td>
</tr>
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RISK ASSESSMENT - PRACTICAL
No sprains, big gains - WorkSafe Queensland
DEVELOPING CONTROLS

• identify the cause (risk factors)
• consult with workers and others
• look for different ways
• look at similar tasks for ideas
• find out what are others are doing
• talk to suppliers
• trial before implementation.
CONTROL

Level 1
Eliminate the hazards

Level 2
Substitute the hazard with something safer
Isolate the hazard from people
Reduce the risks through engineering controls

Level 3
Reduce exposure to the hazard using administrative actions
Use personal protective equipment
Level 1 - Elimination

BEFORE:
Hedging tasks were repetitive and long duration. Resulted in awkward postures. Workers reported discomfort.

AFTER:
Council has introduced a “hedge removal program” and replaced hedges with native plants.

Changed the development rules to exclude hedges from any new developments.
Level 2

Change 80ltr bins to 240ltr wheelie bins

Re-design cardboard storage

Substitute Engineering Isolate
Level 2

Solution

- Low cost
- Follows ergo principles
- Easy
Level 2

AFTER:
• Re-engineered lightweight alloy ramps.
• Trailer ramps for loading roller initially weighed approximately 75 kg, these were replaced with much lighter alloy steel ramps of approximately 40kgs.

AFTER:
• Fit for purpose shovels including long-handled shovels
• Reduce awkward postures i.e. forward bending of the back

AFTER:
• Re engineered storage area on side of trucks
• Reduce awkward and sustained postures
BEFORE:

• Heavy, awkward concrete manhole cover requiring forceful exertions and awkward postures.
• Handling of lifting trip was cumbersome.

AFTER:

• Re-designed and substituted with lighter weight, easy to handle cover and redesigned lever for removal
Level 2

- Poorly designed case, not fit for purpose

- Substituted with a case that is designed for the task. Make the task fit the person

Substitute Engineering
Isolate
AFTER: Substitute with a mechanical petrol operated concrete screeding machine.

BEFORE: Manual screeding required awkward and sustained postures i.e. forward reaching and forward bending
Level 3

• Job rotation (posture)
• Arrange workflows to avoid peak physical and mental demands
• Task specific training
• Anti-vibration gloves
• Shock absorbent footwear
WHAT TYPE OF TRAINING IS APPROPRIATE?

- Safe work procedures
- How to use equipment
- Manual tasks risk management
- How to report a problem or maintenance issue
FOCUS CONTROLS ON SOURCES OF RISK

- Change design or layout of work areas
- Changing the nature, size, weight or number of persons, animals and things handled
- Systems of work
- Work environment
A. WORK AREA DESIGN LAYOUT

Minimise:

- Degree of reaching
- Reduce exertion
- Twisting or bending

Good design includes:

- Suitable working heights
- Adequate space
- Frequently used items in easy reach
- Adjustable to suit all workers
B. Change nature, size, weight or number of persons, animals and things handled

Minimise:

- Force and load
- Vibration
- Awkward/static postures

Consider:

- Load handling
- Tools and equipment
- Maintenance
CHANGING THE NATURE

X Bent wrist

✓ Straight wrist
C. SYSTEM OF WORK

Minimises:

• Repetition and duration
• Time pressures and stress

Guidelines include:

• Control work load
• Suitable work pace
• Task variation
• Maintenance schedules
• Match task demands with workers’ capability
• Training
D. WORK ENVIRONMENT

- Vibration exposure
- Cold conditions
- Heat and Humidity
- Windy conditions
- Floors and surfaces
- Lighting
MONITOR & REVIEW

To ensure:

• Controls are working effectively
• Risk factors have been reduced
• Another hazard or risk has not been created
• Engineering certification for new designs
KEYS TO SUCCESS

1. Gain management commitment
2. Develop a plan
3. Identify HMTs for priority risk assessment – survey, data, consultation
4. Train workplace trainers and nominated workers
5. Conduct Risk Assessments
6. Propose Controls
7. Implement & review controls
8. Evaluate the program
RESOURCES AND CONTACTS

To access any of the resources we’ve used today please visit
www.worksafe.qld.gov.au

You can contact us at SafeWork NSW on 13 10 50 or visit our website at
www.safework.nsw.gov.au
Thank you

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