

PERforM – An Effective Participatory Ergonomics Program for the Mining Industry

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Musculoskeletal disorders (MSDs) are the most common and therefore costly cause of injuries in the mining industry (*Qld Mines and Quarries – Safety Performance and Health report – July 2010 – June 2011*). The basis of these injuries is often complex, with contributing factors related to the environment, individual factors and the specific tasks being performed. The literature has shown and most experienced safety personnel realise; MSDs cannot be prevented with manual handling training (*Daltroy et al 1997, Linton and van Tulder 2001*).

Participatory ergonomics (PE) is an internationally recommended approach to reduce the risk of manual handling injuries in workplaces. Participative ergonomics is the workers active involvement in implementing ergonomic knowledge and procedures in their workplace (*Nagamachi 1995*). By providing ergonomic information and education to these workers, they can synthesis this with their knowledge of their work, to offer solutions to reduce ergonomic risks. Research in this field has demonstrated a wide range of benefits associated with participatory ergonomics including:

- Decreased rate and consequence of injuries in the workplace (*Evanorff et al 1999, Carrivicck et al 2007*)
- Higher productivity with improved wellbeing (*Hendrick 2001, Vink et al 2006*)
- Enhanced team communication and job control / influence (*Rivilis et al 2006*)
- Improvements in worker psychosocial elements (*Evanorff et al 1999*)
- Improvements in pain reports by workers (*Vink and Kompier 1997; Evanorff et al 1999*)
- Reduction in physical risk factors for WRMSD (*De Jong and Vink 2002, Straker et al 2004*)
- Improvements in legislative compliance (*Straker et al 2004*)

It was noted also, that PE programs can be negatively impacted by:

- Lack of Management/supervisory support
- Lack of input from ergonomic expertise
- Lack of an Ergonomic Champion at the worksite

- Time allocated to PE
- Insufficient resources to develop solutions
- Organisational restructures
- Staff changes/ turnover

(Hignett et al 2005; Perhkonen et al 2009)

PERforM is a participatory ergonomics program which was developed by the Workplace Health and Safety Queensland, in conjunction with University of Queensland and Curtin University of Technology. It is a simplified risk assessment tool that used with training can assist identify aspects of tasks which may contribute to musculoskeletal injuries. The PERforM training also allows feedback from workers to suggest design and administrative controls to reduce the risks.

Despite the introduction of this program since 2004, it is not widely known or used by workplaces particularly regionally based. Workplace Health and Safety are currently marketing and training this program to workplaces and relevant industry bodies aiming to improve the uptake of the program with the ultimate aim of reducing the incidence and costs associated with MSDs, the most common injury group afflicting Queensland workers.

Anna Nicholls was introduced to this program about 18 months ago via OT Australia, in which Occupational Therapists were trained in a PERforM Train the Trainer Program by ergonomists from Workplace Health and Safety. Since then she has added this program to her repertoire of injury prevention work. She reported "it is fantastic to offer an alternative training to the 'worker blaming' messages that manual handling training sometimes seems to elude". This is a program, that when fully utilised can elicit results of reducing injuries and better management of ergonomic problems at work.

This presentation is a very practical demonstration of how to use PERforM. Anna has gained footage from a process plant on a minesite to demonstrate to the audience how it works. She will discuss her experience of shooting the videos, time taken to do the training and the interesting interactions during the sessions. She will also outline how to access the PERforM resources and how health and safety personnel can establish PERforM at their own worksites.

In this presentation, Anna has also recorded an interview of Safety Personnel from a local workplace which has embraced PERforM into their existing safety systems. They will discuss the impact of this program on their workplace, the workforce notification and controls introduced related to ergonomic issues and claims statistics.

PERforM resources can be obtained at:

<http://www.deir.qld.gov.au/workplace/subjects/manualhandling/perform/index.htm>

ErgoAnalyst is a software application which assists the implementation and documentation of a participative ergonomics process for large employers.

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Worksheet 1—PERforM Risk Assessment Tool

PERforM - Participative Ergonomics for Manual Tasks

Manual tasks risk assessment form

Date and Workplace

Date: _____ Workplace: _____

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: _____

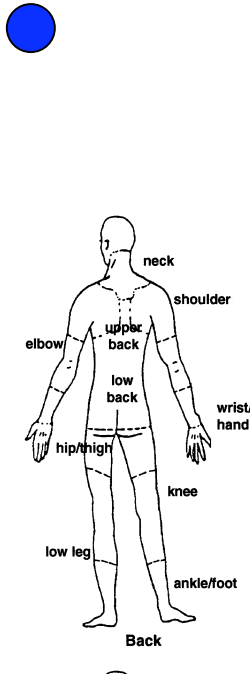
Repetition and duration: _____

Tools or equipment used: _____

Work/task organisation and environment: _____

Worksheet 2—Risk factor assessment

1. Indicate on the body chart which area(s) of the body you feel are affected by the task.
2. If more than one body part is affected, you may shade the different body parts in different colours. If so, use the matching colour when scoring the risk factors (e.g. red for arms on the body and score sheet, blue for low back on the body and score sheet).
3. Give each risk factor a score out of five. One (1) is when the risk factor is not present and five (5) is when the risk factor is the most severe level they have experienced.

Exertion -How much force is the person using? – think about starting or stopping quickly					<h3>Body part</h3> 
1 No effort	2	3 Moderate force & speed	4	5 Maximum force or speed	
Awkward posture - How awkward is the person's posture?					
1 All postures neutral	2	3 Moderately uncomfortable	4	5 Very uncomfortable	
Vibration- How much are the whole body or hand(s) being vibrated?					
1 None	2	3 Moderate	4	5 Extreme	
Duration - How long is the action performed for?					
1 < 10 minutes	2 10-30 min	3 30 min – 1 hr	4 1 – 2 hrs	5 > 2 hrs	
Repetition- How often are similar actions done?					
1 No repetition	2	3 cycle time < 30 s	4	5 cycle time < 10 s	

Risk controls

Design control options:

(eliminate, substitute, engineer) _____

Administrative control options:
