Fact sheet

Musculoskeletal disorders management

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Legislative obligations

The work health and safety (WHS) laws contain principles and requirements for musculoskeletal disorder (MSD) prevention. The WHS laws set out the principles and requirements that apply to MSD risk management in the workplace. These laws require a person conducting a business or undertaking (PCBU) to manage risks to health and safety relating to a musculoskeletal disorder associated with a hazardous manual task.

In determining control measures that contribute to a musculoskeletal disorder mine operators must have regard to:

- postures, movements, forces and vibration relating to hazardous manual task
- the duration and frequency of the hazardous manual task
- workplace environmental conditions that may affect the hazardous manual task or the workers performing it
- design of the work area
- layout of the workplace
- systems of work
- nature size, weight or number of persons, animals or thing involved in carrying out the hazardous manual task.

What is a musculoskeletal disorder (MSD)

The term musculoskeletal disorders or MSDs do not refer to just one disorder. MSD is an umbrella-term for a variety of injuries and disorders including:

- sprains and strains of muscles, ligaments and tendons for example, shoulder muscle strain leading to rotator cuff tear
- back injuries, including damage to the muscles, tendons, ligaments, spinal discs for example, ruptured discs, nerves, sciatica, joints and bones
- joint injuries or degeneration, including injuries to the shoulder, elbow, wrist, hip, knee, ankle, hands and feet
- bone injuries, for example, fractures
  - nerve injuries, for example, carpal tunnel syndrome of the wrist

- soft tissue hernias, for example, abdominal hernias
- muscular and vascular disorders as a result of hand-arm vibration (HAV).

Developing MSDs

There is no set timeframe for the development of an MSD. MSDs can happen suddenly or develop over time. They may:

- occur suddenly as a result of a single forceful action like pulling or moving an object, lifting a heavy object, actions causing overexertion or through a slip, trip or fall.
- develop over a longer period as symptoms associated with minor tissue injuries (including nerve and vascular tissues) are ignored, eventually resulting in a more serious injury.
- be a combination of both, where tissue that is weakened by cumulative injury may become more vulnerable to an acute injury, even at much lower forces.

What is a hazardous manual task?

Many factors contribute to MSDs for a manual task to be considered as hazardous there needs to be specific risk factors present. Based on research conducted in Australia and overseas, the key MSDs risk factors in a mining and petroleum environment are:

- awkward postures
- bending and twisting
- manual handling/load
- forceful exertions
- repetitive actions

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

- repetitive or sustained force
- high or sudden force or exertion
- repetitive movement
- sustained or awkward posture
- duration of the task
- exposure to vibration.

Specific industry risk factors

There are several risks that may contribute to MSDs specifically in mining. These can include:

- less-than-adequate design of mining and quarrying equipment, including the provision of access for operation and maintenance
- difficult work environments, including
  - uneven, wet, muddy ground and road surfaces
  - vibration

  - limited access to and around equipment
  - poorly lit work areas
  - limited visibility from vehicle and machinery cabs
  - glare from the sun or artificial lighting
- characteristics and storage of tools and other equipment that are not fit-for-purpose
- work organisation and planning of systems of work that are not the most favourable, including rosters, shutdown deadlines and overtime.

How to manage MSDs

The process of hazard identification, risk assessment, risk control and evaluation provide the proper framework within which all MSD risk factors should be considered. Steps in the process include:

Step 1: Gather information. The best way to source information to help identify hazardous manual task is to consult with workers and systematically examine available information. Some common sources of information include:

- injury record and trends
- incident and hazard reports
- issues raised by worker, HSR's WHS committee
- records of production or service difficulties causing additional manual tasks
- records of maintenance and service requests which mention physical difficulty in using equipment.

Step 2: Group tasks according to operational areas. Different operational groups in mining may have different loading and demands. Consideration also needs to be given to the physiological impacts of the hazard manual task such as working in hot and humid conditions.

Step 3: Review the risk factors. Reviewing risk factors means it is far easier to determine the root cause or source of the musculoskeletal risk.

Step 4: Assess risk associated with the hazardous manual task. When assessing the risk ensure the most appropriate risk assessment checklist is used. For example, undertaking a risk assessment of haul truck operation in an open cut mine would require a tool covering vibration, sedentary posture and vehicle design and access.

Step 5: Develop and implement controls for the musculoskeletal risks. Controls should eliminate risks rather than relying on people to do the right things. The hierarchy of controls is a well-recognised framework for managing risks. It must be applied by all persons conducting a business or undertaking at a mine or petroleum site to manage health and safety. Controlling the risk directly, by designing out the hazard (high order control), is generally more effective than lower order controls, which rely on physical barriers (for example, personal protective equipment), or administrative control measures (relying on appropriate and/or compliant worker behaviour). For example, there is evidence that training in safe lifting techniques on its own is not an effective control for MSD. Manual task techniques training is therefore not an acceptable control measure on its own

Further information

For further information on hazardous manual tasks and musculoskeletal disorder head to the Code of practice Hazardous manual task