

# Contact Safety

April-June 2017

# Mine Safety & Training Section

By: Rod Neils

## Musculoskeletal Disorders

Every month, MSATS receives injury reports from mining operations throughout the state as required under NRS 512.220. While the types of injuries vary, approximately 25% of those reports involve some type of musculoskeletal disorder (MSD) or injury. In fact, according to the Bureau of Labor Statistics, work related MSDs are among the most frequently reported causes of lost or restricted work time. In addition, a 2013 study showed that MSD cases accounted for 33% of all worker injury and illness cases. Nearly 50% of accepted workers' compensation claims are the result of MSDs. (Oregon OSHA, 2017) The purpose of this article is to provide basic information on MSDs to include what they are; common disorders, and how we can go about protecting the worker.

### What are Musculoskeletal Disorders?

MSDs affect the muscles, nerves, blood vessels, ligaments and tendons, cartilage and joints of the body. MSDs are usually not sudden injuries but are injuries that develop gradually over time. This process can take weeks, months or in some cases, years to develop. Essentially, these disorders can impact any number of areas of the body. These disorders can result in losses of mobility and strength. However, certain risks factors

associated ones occupation can increase the likelihood of injury. These risk factors include lifting heavy items, bending, reaching overhead, pushing and pulling heavy loads, working in awkward body postures, and performing the same or similar tasks repetitively.

### Common Examples of Musculoskeletal Disorders

***Shoulder and Neck Disorders*** – Due to high mobility and the level of complexity found in the shoulder, it is one of the more common locations for MSD development. Common MSDs that occur in the shoulder are:

**Bursitis** – which is an inflammation of the bursa  
**Rotator cuff tendonitis** – inflammation of the tendon(s)  
**Thoracic outlet syndrome (TOS)**

***Hand, Arm and Wrist Disorders*** – Like the shoulder, these areas of body have a high degree of mobility and complexity, and therefore have quite a few MSDs affecting them:

- \* **Tendonitis**
- \* **Tenosynovitis** – inflammation of the tendon sheath
- \* **Carpal tunnel syndrome**
- \* **Ganglion cyst**
- \* **Epicondylitis** (Tennis Elbow)

**Back and Torso Disorders** – Low back pain is another area of concern when it comes to MSDs. This type of pain is one of the most common when it comes to the general population. It is so common, that an estimated 70% of the population in industrialized countries suffer from some type of low back pain. Low back pain can result from:

- Muscle or ligament strain
- Joint arthritis
- Pressure from degenerating or herniated discs

- **Risk factors for low back disorders include:**

- Heavy and frequent physical work
- Work related lifting and forceful movements
- Bending, twisting, and awkward postures
- Whole body vibrations

### Hazard Prevention and Control

As with any occupational hazard, it is important to prevent and or control exposures that lead to MSDs in order to ensure employees are provided with a safe work environment. In addition, by using hazard prevention and control methods, employers can reduce injury rates, lost time accident rates, and workers compensation claims. Employees working with their employer when it comes to hazard prevention and control, they not only help identify problems, they help eliminate hazards, thus ensuring a reduced chance of long term injury.

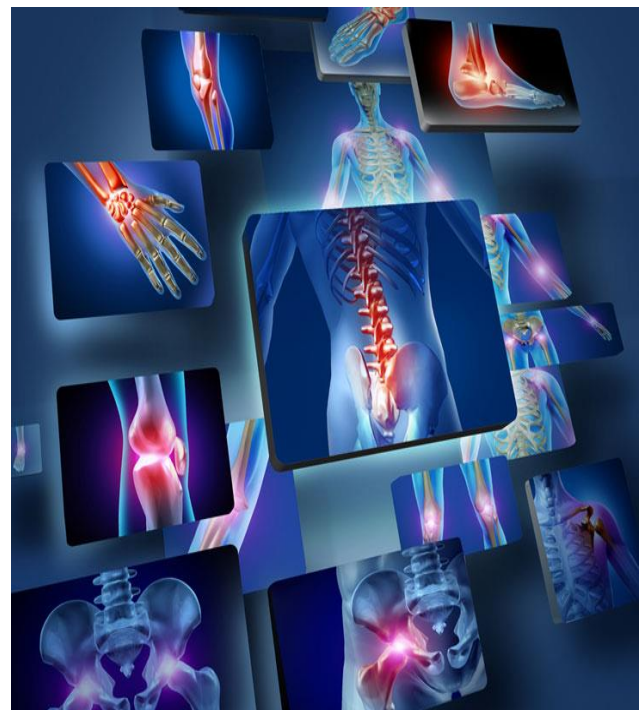
Hazard prevention and control of MSDs requires the use of engineering controls and administrative controls. Personal Protective equipment can be used, but only as a last resort.

### **Engineering Controls**

Engineering controls are designed to make physical changes to the workplace that eliminate or reduce the hazard associated with the job or task.

### **Examples include:**

- Use a device to lift and reposition heavy objects to limit force exertion.
- Reduce the weight of a load to limit force exertion.
- Reposition work tables to eliminate a long/excessive reach and enable working in neutral postures.
- Use diverging conveyors to direct materials toward the worker to eliminate excessive leaning or reaching.
- Redesign tools to enable neutral postures.



### **Administrative Controls**

Administrative controls or work practice controls establish efficient processes or procedures that aim to reduce or eliminate musculoskeletal disorders. These types of controls include:

- Require that heavy loads are only lifted by two people to limit force exertion.
- Establish systems so workers are rotated away from tasks to minimize the duration of continual exertion, repetitive motions, and awkward postures. Use a job rotation system where employees rotate between jobs that use different muscle groups.
- Properly use and maintain pneumatic and power tools.
- Conduct morning stretching sessions with work crews.

Administrative controls have several benefits. They can be implemented quickly and with little to no cost. They can be used when engineering controls are not feasible or possible.

### **Personal Protective Equipment**

PPE is used to reduce exposure to ergonomics-related risk factors. This type of equipment include:

- The use of padding to reduce direct contact with hard, sharp, or vibrating surfaces.
- The use of the gloves to help with vibrations or cold conditions.

One important note when it comes to the use of PPE. Some organizations have employees use items like back belts, wrist splints and braces, with the purpose of protecting employees from MSDs. However, according to studies by NIOSH, there is no evidence that shows the

use of these types of items reduce or eliminate risk factors associated with MSDs. In fact, there is some evidence that suggest the use of these types of items can provide employees with a false sense of security as well a decrease in muscle strength, thus increasing the chances of injury.

### **Worker Protection Process**

Finally, by implementing an ergonomic program, employers can reduce the risk of employees developing MSDs. Some components of a good program include:

- **Risk assessments:** this means identifying ergonomic problems in the workplace, before they lead to MSDs.
- **Training:** As with any workplace hazard, training is an important element. This includes making employees aware of ergonomic hazards; how to report the hazard; and early reporting of suspected symptoms of MSDs.
- **Hazard Control:** Beginning with engineering controls, design workplaces in a manner that reduce or eliminate the ergonomic hazard. Where engineering controls are not feasible, implement administrative controls.
- **Reporting MSD Symptoms:** By encouraging employees to report their early symptoms of MSDs, the hazard can be evaluated and necessary improvements can be made, which will reduce the progression of any musculoskeletal disorder and development of serious injuries. This early reporting will help to reduce lost-time claims.

**Periodic Program Assessment:** Once the program has been established, it is a sound practice to periodically evaluate and audit it to ensure it is effective. The evaluation should be able to answer the question, “is your program meeting your desired goals.”

Musculoskeletal disorders brought on by poor work design and are extremely costly to both the employer and the employee. Remember, 33% of all accepted workers’ comp claims are the result of MSDs. According to the Centers for Disease Control and Prevention, back injuries alone account for 20% of workplace injuries and cost \$20 – 50 billion per year. (Middlesworth, 2017) What is not accounted for here is the fact these injuries can be debilitating and cause a reduced quality of life for the employee. Therefore, it is important for employers and employees to work together to understand what these disorders are, the risks factors that lead to these injuries, and how to control the hazards that cause MSDs.

## References

- Ergonomics and Musculoskeletal Disorders*. (2017, April 13). Retrieved from The National Institute for Occupational Safety and Health (NIOSH): <https://www.cdc.gov/niosh/topics/ergonomics/>
- Middlesworth, M. (2017, April 14). *Truth vs. Myth: Using Industrial Back Belts to Prevent Low Back Injuries*. Retrieved from Ergonomics Plus: <http://ergo-plus.com/back-belts-to-prevent-low-back-injuries/>
- Oregon OSHA*. (2017, April 12). Retrieved from Oregon OSHA: <http://osha.oregon.gov/Pages/topics/ergonomics.aspx>

# QUIZ

1) Name 3 places of the body that MSDs affects.

\_\_\_\_\_,  
\_\_\_\_\_, \_\_\_\_\_

2) Name 3 examples of Musculoskeletal Disorder.

\_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_.

3) Name 2 risk factors for low back disorder.

\_\_\_\_\_, \_\_\_\_\_

4) List 3 components of a good worker protection program.

\_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_

**If there is any specific topics you would like to learn more about please write on line below.**

---

---

---

**Employee:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Mine/Company:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_