

# Musculoskeletal disorders (MSDs)—Risk factors

List MSD hazards on site.

---

---

---

## Explain dangers

Musculoskeletal disorders (MSDs) are injuries of the muscles, nerves, tendons, ligaments, joints, cartilage, or spinal discs.

MSDs DO NOT include musculoskeletal injuries that are the direct result of a fall, struck-by event, vehicle collision, violence, etc.

Some recognized risk factors for MSDs are:

### 1. Forceful exertion

Force is the amount of effort required to perform a task or job—the more force exerted, the greater the stress on the body.

Lifting, pushing, pulling, and gripping a tool are examples of activities that require you to exert force or muscle effort.

### 2. Awkward postures

Posture is the position of body parts. Awkward postures occur when joints are held or moved away from the body's natural position. The closer the joint is to its end of range of motion, the more stress is placed on the soft tissues of that joint, such as muscles, nerves, and tendons.

Examples are stooping (bending over), kneeling, and reaching overhead.

### 3. Repetitive movements

Movements performed over and over are called repetitive movements. Continual stress is placed on one body part without sufficient muscle recovery time. Repetitive movement can also be an awkward posture held for a long time.

Nailing a deck, screwing drywall, and tying rebar are examples of repetitive tasks.

### 4. Secondary risk factors

**Contact pressure** is any external pressure applied to soft tissues of the body. Holding tools where handles press into parts of the hand is an example of contact pressure.

**Vibration** can cause damage to nerves and blood vessels as well as other soft tissues.

**Gloves** can be a risk factor if they don't fit properly or if they restrict movement of the fingers and hands.

**Temperature**—Cold can reduce the range of motion and flexibility of muscles. Heat can increase fatigue and limit muscle recovery.

## Identify controls

Two approaches to prevent MSDs are:

### 1. Engineering Controls

Engineering controls are measures taken to physically modify the forcefulness, repetitiveness, awkwardness, or vibration levels of a job.

Examples include modifying the workstation layout as well as selecting and using tools, work materials, and work methods that will reduce MSD risk.

### 2. Administrative Controls

Administrative controls are management-directed work practices and policies to reduce or prevent exposures to risk factors.

Administrative control strategies include changes in job rules and procedures such as more rest breaks, job rotation, and training.

The preferred approach is to use engineering controls and design the job to the capabilities and limitations of the workforce. However, administrative controls can be helpful as temporary measures until engineering controls can be implemented or when engineering controls are not practicable.

## Demonstrate

Ask the crew to describe any tasks that can contribute to MSDs and any solutions that can reduce the risk of MSDs.