

Musculoskeletal disorder controls

List MSD hazards on site:

Explain dangers

Musculoskeletal disorder (MSD) is an umbrella term for several injuries and disorders of the muscles, tendons, ligaments, bones/cartilage, and nerves.

MSD hazards include:

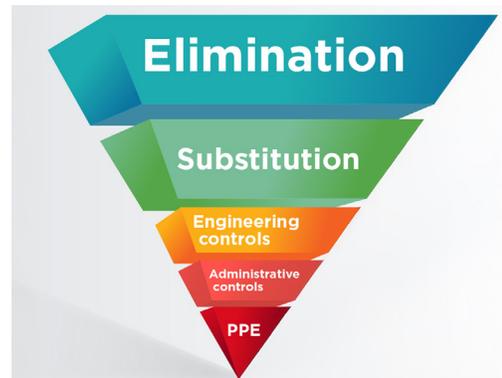
1. **High forces** (e.g., lifting, pushing, pulling, and gripping a tool)
2. **Awkward postures** (e.g., bending over, kneeling, and reaching overhead)
3. **High repetition or static work** (e.g., nailing a deck, screwing drywall, and tying rebar)
4. **Contact pressure** (e.g., pressing a tool handle into the palm of your hand, kneeling on the ground)
5. **Vibration** (e.g., hand-arm vibration from vibrating hand tools like grinders and reciprocating saws, whole-body vibration from operating heavy equipment)
6. **Cold temperatures**

Identify controls

Controlling MSD hazards is the same as any other workplace hazard. Workplaces are encouraged to implement the most effective controls to eliminate MSD hazards or reduce exposure of the hazards to acceptable levels.

The hierarchy of controls organizes controls from most effective to least effective:

- **Elimination** (i.e., physically remove the hazard)
- **Substitution** (i.e., replace the hazard with another option that reduces the risk)
- **Engineering** (i.e., modify the design of the



physical workplace to remove or block the MSD hazard from the worker by machinery, tools, or equipment)

- **Administrative** (i.e., change the work organization and work practices to reduce exposure to hazards, such as job rotation, pace of work, training, breaks, etc.)
- **Personal protective equipment (PPE)** (i.e., wear equipment that creates a barrier between the worker and the hazard)

Consider the following control ideas to reduce the MSD risk associated with common work tasks.

MANUAL HANDLING OF TOOLS AND MATERIALS

- Plan ahead to eliminate or minimize material handling.
- Use carts, dollies, hoists, or other mechanical handling devices.
- Use ladder hoists, gin poles, daisy chains, or cranes to move materials on or off roofs.
- Use chain falls, motorized buggies, carrying handles, or extension handles for carrying large or awkward materials like drywall.
- Break loads into smaller units (e.g., put cement into bags weighing less than 50 lb.)
- Exercise and stretch before starting work.
- Label materials with their weight.
- Ask another worker to help you lift heavy objects or awkward loads.
- Use proper lifting techniques. Lift with your legs rather than bending over and lifting with your back. Keep the load close to your body.
- Use shoulder pads when carrying loads on your shoulders.

Musculoskeletal disorder controls *continued*

WORKING WITH HAND TOOLS

- Use tools that allow you to use a power grip.
- Avoid pinch or key grips.
- Choose tools with triggers that allow for the use of multiple fingers rather than one finger or a thumb.
- Choose tools that can be used with the wrist straight, that are power assisted, and that have vibration-reducing features. You should also opt to use tools that are lighter and designed to reduce hand torque and kickback.
- Ensure the tool is balanced and does not require static muscular effort to hold it in position.
- Ensure the handle of a tool does not create pressure points in the palm of the hand.
- Use tools with handles that fit the hand. For example, use a smooth, cushioned hand grip rather than one with hard ridges that space out the fingers.
- Use rubber or sponge-type grips on tool handles.
- Use tools that can be safely used by either left-handed or right-handed workers.
- Maintain tools regularly.
- Inspect tools regularly. Ensure worn or damaged tools are fixed or replaced.

WORKING AT GROUND OR FLOOR LEVEL

- Use tables, benches, or stands to bring work to waist height.
- Store materials at waist height.
- Change positions regularly (e.g., sit, stoop, or kneel with kneepads).
- Use pipe stands on pipe and steam-fitting jobs, D-handles or longer handles for shovelling, rebar-tying devices, stand-up fastening systems for roof insulation, rug rippers, carpet stretchers, and pipe/conduit benders.

KNEELING

- Use high-quality kneepads or kneeling creepers.
- Wear pants with kneepad pockets.

- Take short rest and stretch breaks.

WORKING OVERHEAD

- Use drywall lifts, materials lifts, duct jacks, scissor lifts, and extension poles or stands for tools when doing overhead work.
- Make use of adjustable scaffolds, aerial work platforms, or other work platforms to decrease awkward postures.
- Use bit extenders for drills/screw guns.
- Use pole extenders, where appropriate, to minimize overhead reach (e.g., telescoping drill jack).
- Use lightweight tools to reduce load on your shoulders.
- Keep arm elevations below 60 degrees. Do not elevate your arm above 90 degrees for more than 10 per cent of the workday.
- Adjust tooling and/or the workspace to decrease the amount of time you spend working overhead, when possible.
- Perform work close to the body to avoid reaching.
- Ensure your arm is free to rotate.
- Ensure tasks completed overhead have low precision requirements.
- Keep the overhead applied force in the vertical plane.
- Use light-weight tools to reduce the load on your shoulders.
- Take regular rest breaks to give the body time to recover (e.g., take a 1-minute break for every 10 minutes of continuous overhead work).

Demonstrate

Ask your crew to share ideas about how to reduce MSD risks.