Workplan: Manual Materials Handling



Lifting, pushing, pulling and carrying heavy objects remains a fundamental job task in just about all industries and work settings.

Performing these tasks – typically referred to as “manual materials handling” – puts workers at risk of musculoskeletal disorders (aka, “MSDs”), or serious and painful injuries to the back, limbs, joints and muscles. This Workplan outlines four steps you can implement over a 30-day period to prevent MSDs along with the insurance, citations, productivity, and other liabilities that can result.

Step One: Hazard Assessment (Day 1-5)

The first step in controlling MSD hazards is to conduct a hazard assessment. While workers may get MSDs from job tasks that don’t involve handling heavy objects – like sitting at a poorly designed office workstation over a prolonged period – for purposes of this Workplan, the hazard assessment required should focus only on manual materials handling operations and the job tasks putting workers at risk of MSDs during these operations. Hazard assessment methods should include:

- Directly observing workers as they perform manual materials handling operations.
- Interviewing workers and supervisors who do these jobs.
- Reviewing injury logs, workers’ comp claims, first aid records and other materials that may reveal MSD injury patterns or trends.

Manual materials handling and ergonomics are closely related, so ergonomics-related hazards should be included in your assessment.

As you identify hazards, consider the risk factors that determine whether a manual materials operation poses an MSD risk, including:

1. How heavy the object being lifted, carried or moved is.
2. The object’s size, shape, texture and other characteristics affecting how it’s handled.
3. The horizontal distance between the worker and the object at *both*the start and end of the lift.
4. How high the worker must lift the object at both the start and end of the lift.
5. How far the object must be moved.
6. The kind of terrain the worker must travel to move the object.
7. Whether the lift requires the worker to twist, bend, reach and/or assume an unnatural and uncomfortable posture.
8. How many times per hour and/or per day the worker must carry out such lifts.
9. The physical environment, e.g., temperature and climate conditions.

10. The health, age, stamina and skill of the worker performing the lift.

Once you've identified all hazards, evaluate the seriousness of each so you can make intelligent, economically viable and legally sound decisions about the measures necessary to control them. Your evaluation should rank hazards by:

- Severity, including, intensity, duration and frequency of exposure.
- Correctability, including the complexity of the hazard's cause(s), whether technology or other solutions are available to control it, how much they cost, and how feasible they are to implement at your workplace

The following tools can be used to evaluate and rank the hazards you've identified:

1. Ergonomic Injuries: Data Summary & Corrective Actions
2. Manual Material Handling Checklist

Step Two: Choose & Implement Safety Controls (Day 6-10)

Now that you've identified all manual materials handling hazards, you must implement controls to manage the risks identified.

Three Control Methods

1. **Eliminate**

If reasonably practicable, totally eliminate the hazard. For example, do not perform the manual materials handling operations that expose workers to MSD hazards.

Implement Engineering Controls

If elimination isn't reasonably practicable, take measures to control the hazards. Start with engineering controls. OSHA expects employers to determine if mechanical devices such as forklifts, dollies, conveyors, and hand trucks can be used to move materials. Making workers handle materials by hand rather than using feasible mechanical devices can lead not only to MSDs but OSHA citations or concerns from your insurer. Simpler forms of engineering controls to consider include:

- Dividing materials into smaller, lighter loads
- Placing materials into smaller, more numerous containers
- Reducing the physical distance – both horizontal and vertical – that materials must be moved

2. **Implement Work/Administrative Controls**

The next layer of hazard control is use of "work" or "administrative" controls. These affect how the work is actually carried out. Start by developing and implementing safe work procedures for lifting and carrying heavy objects. Other work controls may include:

- Using teams of workers to lift heavy objects (or patients in healthcare settings)
- Rotating workers in and out of high-risk tasks to prevent repetition and continuous exposure
- Giving workers regular rest breaks to recover
- Alternating heavy with light tasks

3. **Use PPE & Other Protective Equipment**

Last but not least, make sure workers who handle materials by hand have – and use –

appropriate PPE and safety equipment for preventing MSD hazards, which may include:

- Gloves making it easier for workers to grip and protecting hands from vibration, impact or cold
- Slip-resistant footwear
- Anti-fatigue mats to reduce musculoskeletal strain and fatigue from walking on hard surfaces
- Footwear with anti-fatigue insoles, which is especially useful for working on hard surfaces that can't be covered with mats
- Knee and elbow pads to minimize the stress and fatigue from contact with hard or sharp surfaces
- Wrist splints and braces to limit arm and wrist movements that can cause or aggravate an injury

Note that back belts have **not** proven effective in protecting workers against MSD hazards.

Implementation Tip: Although listed in order of recommended implementation, recognize that engineering, work and PPE controls are **not** mutually exclusive. In the real world, they often can and should be used **in combination**.

Step Three: Training (Day 11-20)

The next step is to train workers involved in manual materials handling operations, so they understand MSD hazards they face and how to manage the risks. At a minimum, safety training should explain to workers:

- What MSDs are.
- What causes MSDs and how workers can get MSDs by lifting, carrying, pushing, pulling and moving heavy objects by hand.
- The measures in place to ensure workers don't get MSDs (or other injuries) while performing manual. materials handling operations, including lifting equipment, safe work procedures and required PPE.
- The symptoms and signs of an MSD.
- The procedures for reporting MSD injuries and hazards.

Step Four: Monitor, Reinforce, Improve (Day 21-30)

The final step is to monitor your controls to ensure they're effective and determine whether adjustments or corrective actions are necessary. Monitoring must be carried out on an ongoing and continuous basis. Even though it's scheduled for Day 21-30, the monitoring process should never end!

Monitoring should be carried out on a regular basis, e.g., as part of monthly work inspections and scheduled safety audits, and in response to indications that current measures may not be adequate. Such red flags would include:

- MSD symptoms or hazards reported by workers, supervisors, or contractors doing manual materials handling jobs.
- Safety incidents involving such operations.
- Significant changes to manual materials handling operations, personnel, work environment, equipment, etc. that aren't accounted for or anticipated in the existing hazard assessment.

Remember: keep careful records documenting measures taken to assess and correct handling and ergonomic risks, so you can prove your compliance with safety regulations.