

Preventing Musculoskeletal Disorders in Construction

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Musculoskeletal disorders (MSDs) rank among the leading causes of lost work time in construction. They build up over months or years and can force workers off the job for weeks, months, or even permanently. This fact sheet explains what an MSD is, which ones affect construction workers most, and what workers and employers can do to prevent them.



What is an MSD?

An MSD damages a muscle, tendon, ligament, nerve, joint, or spinal disc.¹ Unlike a fall or a struck-by injury, most MSDs develop slowly from repeated stress on the same part of the body.

Common causes include:

- Lifting, carrying, or moving heavy materials.
- Working in awkward positions, such as kneeling, crouching, or reaching overhead.
- Repeating the same motion hundreds of times a shift.
- Gripping tools hard or feeling vibration from power equipment.
- Working in cold conditions that stiffen muscles and joints.

Why are construction workers at risk?

Most jobs have one or two of these risk factors. Construction work often has all of them at once. Heavy loads, awkward postures, vibrating tools, and repeated motions often combine on the same job.

The numbers show the result. A construction worker with an MSD misses a median of 15 days of work compared with 11 days for all other nonfatal construction injuries combined.² The reason? MSDs often take longer to heal than other construction injuries and can keep workers off the job much longer.

Common MSDs in construction

- **Back disorders.**
Lifting, carrying, and awkward postures strain the lower back more than any other body part. In 2023, 15.2% of construction workers reported significant back pain in the past three months.³
- **Shoulder injuries.**
Repeated overhead work in framing, drywall, electrical, and roofing places constant stress on the shoulder and can damage tendons over time.
- **Knee disorders.**
Flooring, tile, concrete, and roofing work often require long stretches of kneeling.
(continued)

This places repeated stress on the knees and can damage cartilage and tendons over time.

- **Carpal tunnel syndrome and other hand and wrist disorders.**

Vibrating tools and tight, repeated gripping squeeze nerves in the wrist. This can cause numbness, tingling, and lost grip strength.

- **Tendinitis and other repetitive strain injuries.**

Hammering, drilling, and troweling inflame tendons in the elbow and wrist. Electricians, plumbers, carpenters, and other specialty trade workers face the highest risk. Specialty trade contractors reported 28.4 MSDs per 10,000 full-time workers in 2021–2022, the highest rate among construction subsectors.⁴

MSDs by the numbers*



~1.2 million

construction workers report a repetitive strain injury each year.⁵



~33,200

construction workers take days away from work due to an MSD each year.⁶



15 days

median time away from work per construction MSD case, versus 11 days for all other nonfatal construction injuries.⁷



40.5%

of construction workers with a repetitive strain injury said it limited their activity for at least 24 hours — more than workers in all other industries combined (31.7%).⁸



27.6%

of construction workers with a musculoskeletal injury reported taking a prescription opioid, more than double the rate for the construction workforce overall (5.2%).⁹



\$700 million+

estimated cost to the construction industry from MSDs each year.¹⁰

Prevention: What works?

Engineering controls — change the job, not the worker

- Use mechanical lifts, hoists, dollies, and carts to move heavy materials.
- Choose power tools with vibration dampening and easy-grip handles.
- Set up adjustable-height platforms and scaffolding to cut down on overreaching and overhead work.
- Give workers knee pads or kneeling platforms for flooring, tile, and concrete work.

Work practices: Plan the job

- Plan the lift before you start the task. Break heavy loads into smaller, lighter pieces.
- Use a two-person lift for loads over 50 pounds when mechanical lifting devices are not available.
- Stage materials at waist height to cut down on bending and reaching.
- Rotate workers among tasks to limit repeated stress on the same muscles and joints.



- Build short recovery breaks into repetitive or heavy tasks.
- Add ergonomics (ways to reduce strain and injury) to pre-task planning meetings and toolbox talks.

Training and early reporting: Catch it before it's disabling

- Train crews to lift with their legs, keep loads close to the body, and avoid twisting while lifting.
- Teach workers to recognize early MSD symptoms: numbness, tingling, stiffness, or pain that doesn't ease after rest.
- Encourage workers to report symptoms early. Early treatment stops a minor strain from becoming a career-ending injury.
(Continued)
- Track discomfort reports and near-misses the same way you track injuries. They flag a hazard before it hurts someone.

New technology can help, but it isn't a cure

Construction companies continue to test new technology that reduces physical strain on workers. These tools show promise, but they work best when combined with good planning, proper lifting techniques, and safe work practices—not as a replacement for them.

Examples include:

- **Construction robots.**
Robots can handle repetitive or physically demanding tasks such as bricklaying, rebar tying, drywall finishing, welding, and road paving. These machines help reduce heavy lifting and repetitive motions for workers.
- **Exoskeletons.**
These wearable devices support the back, shoulders, or knees during lifting, overhead work, or kneeling. Researchers continue to study how well they perform on active job sites.

Before using new technology, train workers on its safe operation, understand its limitations, and follow the manufacturer's instructions.



Toolbox Talk Discussion Starters

Use these questions to open a five-minute safety meeting on MSD prevention:

1. Which task today will put the most strain on your body?
2. What could make that task easier or safer?
3. Can we use equipment instead of muscle power?
4. Has anyone noticed pain or numbness that isn't going away?

References

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