

Welding: ergonomic solutions

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Welding hazards include MSDs

Welding presents workers with a number of hazards. The most common are

- metal fumes
- welding arc light (both visible light and invisible ultraviolet light)
- particles getting in your eyes
- burns
- noise
- cuts and bruises.

Welding also comes with the risk of musculoskeletal disorders (MSDs). It can be a physically demanding job. Welding can involve precision work in awkward, confined, or tight locations. These conditions can lead to MSDs such as back, shoulder, neck, or knee problems.

One study found that 50% of the welders studied were absent at least one day in two years due to MSDs. This accounted for 44% of all lost work days. Other studies have found that more than 75% of welders reported shoulder or neck symptoms in the past year—more than double the percent of the

general population reporting such symptoms.

Most studies found that the main contributing factors to the MSDs come from the conditions of welding work:

- awkward postures such as squatting, kneeling, or stooping
- lifting heavy equipment or materials
- holding a bent neck position or keeping your shoulders raised for a long time
- supporting the heavy weight of the hard hat and welding mask with the neck.



This welder should be working from a stable work platform, such as a scissor lift, set up at a convenient height. This posture can lead to a musculoskeletal disorder.

More than half of the injuries to welders involve the back, neck, shoulders, arms, and hands. Your workplace should focus on preventing injuries to these regions.

Reducing MSD risk

You can prevent MSDs associated with welding. Your focus should be on reducing or eliminating

- forceful exertion which may come as part of your welding work (e.g., heavy lifting).
- awkward postures, including body positions where you don't move for a long time.

Reducing exertion

To reduce forceful exertion, consider the following:

- ✓ Use auto-darkening lenses. They darken as soon as the arc is struck. They eliminate the need to keep opening and snapping-closed your helmet, reducing neck strain.
- ✓ Choose flexible cables.
- ✓ Use mechanical lifting equipment whenever you can, particularly when loading or unloading material.
- ✓ Choose welding sets which have comfortable, well-positioned handles. Consider how any protruding controls or vents can make it more difficult to carry. When choosing a large welding set, choose one that you can push or pull comfortably over uneven surfaces.
- ✓ Use height-adjustable mobile lift tables for transporting material into the workshop.

These tables can also be used to support material when you're loading machines. A smaller table can be used for smaller sheets of metal or small machines such as a punch press. The larger table can be used for the "break and bending presses" as well as incoming materials.

- ✓ Pre-assembly and material handling equipment helps reduce unnecessary lifting.
- ✓ When you have to lift, ask someone to help you.

Reducing awkward postures

To reduce awkward postures, consider the following:

- ✓ Position the work at a height between your waist and your shoulder.
- ✓ Use lifting and turning tables with wheels.
- ✓ Use welding guns which have swivels and can be used in either hand.
- ✓ Sit on a work stool when the work is low.
- ✓ Use a work table or work bench instead of bending over to work on the ground.
- ✓ Use a rotating clamp for pipe.
- ✓ Put your welding leads on pulleys.
- ✓ Take stretch breaks throughout the day to relieve discomfort and get the muscles moving.

For more information on ergonomics, visit www.csa.org, or contact Peter Vi at petervi@csao.org. ■



Use a work bench instead of bending over material on the ground.

