# Employee Safety Training ADVISOR

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# Ergonomics

## Good ergonomics can prevent pain

## Lawsuit seeks to end OSHA powers

## Which serious violations caught OSHA's attention the most?

## Fatal work injuries up 8.9 percent over 2020

Information and resources to help your employees work safely

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## In This Issue



# MESSAGE FROM THE EDITOR

## Fitting the job to the person

Ergonomics, or fitting a job to a person, can help lessen muscle fatigue, increase productivity, and reduce the number and severity of work-related musculoskeletal disorders (MSDs).

In 2019 alone, 47,280 private industry workers nationwide were treated in an emergency room for musculoskeletal disorders, also known as ergonomic injury. While there is no OSHA standard on ergonomics, OSHA does cite employers using the General Duty Clause (section 5(a)(1) of the OSH Act) when employers do not address serious ergonomics-related hazards. Employers can use engineering controls, administrative and work practice controls, and personal protective equipment (PPE) to address ergonomic issues in the workplace.

This month's Training Blueprint provides an outline you can use to provide employees information on the signs and symptoms of some common MSDs, safe lifting techniques, and methods for setting up an ergonomic workstation. The Employee Handout and Quiz can be used to reinforce learning. ♦


**Jessica Stengel**

Jessica joined J. J. Keller & Associates, Inc. in 2021. As an Associate Editor on the Environmental, Health & Safety (EHS) Publishing Team, Jessica's editorial responsibilities include developing and updating content for various publications including the *Safety Training Awareness Program* and the ***Environmental Regulatory Alert*** newsletter. Jessica has over five years' experience as a writer and editor in environmental publishing.

# TRAINING BLUEPRINT — ERGONOMICS

## Good ergonomics can prevent pain

Ergonomics is the science of arranging the work environment to fit the person. It involves evaluating the workstation, tools, and motions of the work performed. There is no OSHA standard on ergonomics, but OSHA does cite employers using the General Duty Clause (section 5(a)(1) of the OSH Act) when employers do not address serious ergonomics-related hazards.

### Overview

This training outline will describe the signs and symptoms of some common musculoskeletal disorders (MSDs), outline safe lifting techniques, and suggest some methods for setting up an ergonomic workstation.

### Specific training elements

#### 1. Introduce common MSDs and their signs and symptoms.

The principle behind ergonomics is that work-related MSDs can be reduced or eliminated by fitting the job to the worker. Options include adjusting a workstation, rotating between jobs, using mechanical assists, or adjusting postures and movements.

MSDs are injuries and illnesses that affect muscles, nerves, tendons, ligaments, joints, or spinal discs. Some MSDs include:

- Tendinitis (inflammation of a tendon)
- Low back pain

- Carpal tunnel syndrome (a nerve disorder in the wrist
- Trigger finger (a tendon disorder in the finger
- Epicondylitis (inflammation of connective tissue, such as tennis elbow)
- Sciatica (back and leg pain related to the sciatic nerve)
- Raynaud's phenomenon (decreased circulation in the fingers)
- De Quervan's syndrome (a tendon disorder in the thumb)

Workers suffering from MSDs may experience signs such as less strength for gripping, less range of motion, loss of muscle function, and inability to do everyday tasks. Some common symptoms of MSDs include:

- Painful joints;
- Pain, tingling, or numbness in the hands or feet;
- Shooting or stabbing pains in the arms or legs; and
- Swelling or inflammation.

#### 2. Discuss the activities that can contribute to MSDs.

Ergonomic risk factors can include:

- Repetitive motion,
- Using excessive force (overexertion),
- Maintaining awkward postures,
- Contact stress (prolonged kneeling or resting forearms on sharp-edged surfaces), and
- Vibration.

**TRAINER'S NOTE:** Review the activities in your workplace that may have ergonomic risk factors.

#### 3. Describe the hazards of manual lifting.

Overexertion and repetitive motion during manual lifting can result in strains, sprains, torn ligaments or muscles, tendinitis, epicondylitis, and ruptured or slipped disks.

The weight of the load is obviously a factor in whether or not material can be lifted safely. Other lift factors include:

- The frequency of lifting,
- The duration of lifting activities, and
- Body motions during the lift.

Individual variables such as age, sex, body size, state of health, and general physical fitness also influence a person's risk of injury.

The most effective way to prevent injury is to redesign the work environment and work tasks to reduce lifting hazards. These engineering, administrative, and workplace controls take a close look at lifting jobs and redesign them to make the task safer. For example, engineering controls often involve the installation and use of mechanical lifting equipment. Implementing administrative and work practice controls involves methods such as setting weight, size, and frequency limits on manual lifting tasks and training workers on safe lifting techniques.

## 4. Demonstrate the procedures for safe lifting.

Use these guidelines for manual lifting:

- Size up the load before lifting. If unsure of the load's weight, test it by moving one of the corners. Split up large loads into smaller units. If it's heavy, an awkward shape, or difficult to get a grip on, use a mechanical lifting aid — or get help from another worker. When in doubt, don't lift alone!

- Plan ahead. Make sure there's a clear path to carry the load, and a place to set it down, before beginning the lift.
- Place feet close to the object and center body in front of the load.
- Bend knees to allow stronger leg muscles to lift the load.
- Get a good grip.
- Lift straight up, keeping the load close to the body and letting the legs do the work. If lifting with a partner, use a signal so both parties lift at the same time.

- Don't twist or turn the body after beginning the lift. Start turns by moving the feet, not by twisting shoulders and hips.
- Set down the load if either party starts to lose their grip.
- Set the load down properly. Lower the load into place by bending the knees. If working with a partner, set down the load at the same time.

**TRAINER'S NOTE:** After a few demonstrations, allow time for the trainees to practice safe lifting techniques.

## 5. Describe some methods to improve the ergonomics of workstations.

Having to sit or stand for long periods in the same position can result in soreness of the back and neck and reduced circulation to the legs. Workers often maintain awkward shoulder, elbow, and wrist postures because of improper chair height or position.

Set up the workstation to allow for a comfortable sitting or standing position where equipment can be easily reached and used.

The chair height is correct when the work surface is at elbow height, and the soles of the feet can rest on the floor or on a footrest. The back of the knee should be slightly higher than the seat of the chair (to allow the blood to circulate freely in the legs and feet). The seat should have a softly padded or rounded edge to maintain circulation. The chair's backrest should be adjusted so the entire back is supported. Armrests should be adjustable and low enough to fit under the work surface. This allows a person to get close enough to the work without having to pull their elbows away from their body. It may be helpful to tilt the work surface to help prevent awkward wrist postures. The edge of the work surface should be rounded or padded so the arms don't have to rest on a sharp edge.

Standing workstations should also be arranged so the work surface is at elbow height, and a person should be able to stand close enough to reach the work without pulling their elbows away from their body. Height- and tilt-adjustable work surfaces are helpful. Anti-fatigue mats promote better circulation and reduce fatigue in the legs and feet if workers must stand for longer periods.

Whether sitting or standing, a worker should occasionally take short breaks to stretch and change position. Some workstations can be designed to allow for both sitting and standing. ♦

**TRAINER'S NOTE:** Highlight some of the ergonomic solutions you've implemented in the workplace and ask trainees if they can suggest any improvements.

**Key to remember:** Workers in various industries and occupations can be exposed to risk factors for MSDs, which increases their chances of injury. Implementing ergonomic processes can help reduce the risk.

# Employee Handout — Is your job a good fit?

It looks kind of funny when a tall person must crunch up to fit at a small desk or a shorter person must climb up into a tall chair. Unfortunately, having to work in surroundings that just don't fit can lead to injuries. Arranging the work environment to fit the person is called "ergonomics."

An ergonomics program adjusts workstations, has employees rotate between different jobs, has workers use mechanical assists to handle materials, or has workers adjust their postures and movements. These practices can reduce the risk for developing work-related musculoskeletal disorders (MSDs) such as tendinitis (inflammation of a tendon), low back pain, or carpal tunnel syndrome (a nerve disorder in the wrist).

## Recognize the risks and symptoms

Ergonomic risk factors can include:

- Repetitive motion,
- Using excessive force (overexertion),
- Maintaining awkward postures,
- Contact stress (prolonged kneeling or resting forearms on sharp-edged surfaces), and
- Vibration.

Some common symptoms of MSDs include:

- Painful joints;
- Pain, tingling, or numbness in the hands or feet;
- Shooting or stabbing pains in the arms or legs;
- Swelling or inflammation.

## Lift safely

One ergonomic practice you can do to help prevent back pain and injury is to follow safe lifting guidelines every time you must do manual lifting:

- Size up the load before you lift. If you don't know the load's weight, test it by moving one of the corners. Split up large loads into smaller units. If it's heavy, an awkward shape, or if you can't get a good grip, use a mechanical lifting aid; or get help from another worker. When in doubt, don't lift alone!
- Plan ahead. Make sure you have a clear path to carry the load, and a place to set it down, before you begin the lift.
- Place your feet close to the object and center yourself in front of the load.
- Get a good grip.
- Lift straight up, keeping the load close to your body. Let your legs do the work. If you're lifting with a partner, use a signal so you both lift at the same time.
- Don't twist or turn your body once you've made the lift. When you change directions, start by moving your feet, not by twisting your shoulders and hips.
- If you start to lose your grip, set down the load.
- Set the load down properly. Lower the load into place by bending your knees. Again, if you're working with a partner, set down the load at the same time. ♦

# Quiz — Is your job a good fit?

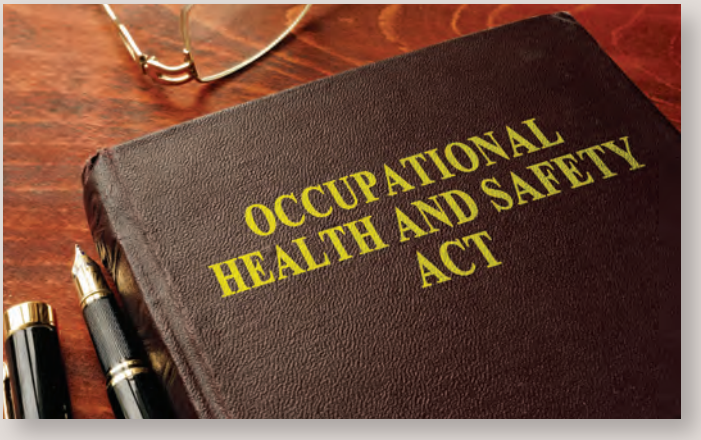
For each question, show if you think the statement is **True** or **False**.

| | | | |
|---|---|---|---|
| 1. | Tendinitis is a nerve disorder in the wrist. | True | False |
| 2. | Adjusting workstations to fit workers is part of an ergonomics program. | True | False |
| 3. | Painful joints is an ergonomic risk factor. | True | False |
| 4. | Safe lifting techniques help prevent back pain and injury. | True | False |
| 5. | When you carry a load, twist your shoulders when you change directions. | True | False |

**NAME:** _____ **DATE:** _____

## Lawsuit seeks to end OSHA powers

A plaintiff had hoped a lower court would declare unconstitutional OSHA's statutory power to promulgate permanent safety standards, and to issue a permanent injunction preventing OSHA from enforcing those standards. While the lower court found the plaintiff's arguments unpersuasive, the plaintiff is now appealing the case in the U.S. Court of Appeals for the Sixth Circuit (Case No. 22-3772). The OSH Act fails to limit OSHA's power to set standards, argues plaintiff's attorneys in the case. ♦




## Which serious violations caught OSHA's attention the most?

If death or serious physical harm can result from a workplace hazard and the employer knew or should have known the hazard exists, OSHA calls it a "serious" violation and can slap an employer with a $14,502 penalty for each one. Because more than one serious violation may be found, total penalty amounts can climb fast!

OSHA posted its frequently cited serious violations for general industry, construction, and maritime for fiscal year 2022. Of all the industries, citations for 29 CFR 1926.501(b)(13) were the most frequently cited in fiscal year 2022, with 4,171. That standard requires fall protection for residential construction.

OSHA cited construction almost 11,900 times for the 10 most-frequently cited serious violations for that industry. Whereas, the agency cited general industry less than half that figure, with about 5,150 citations for its top 10. ♦

# Fatal work injuries up 8.9 percent over 2020

A worker died every 101 minutes from a work-related injury in 2021, the Bureau of Labor Statistics reported in its Census of Fatal Occupational Injuries (CFOI). A total of 5,190 fatal work injuries was recorded in the U.S. in 2021, an 8.9 percent increase over 2020.

The fatal work injury rate was 3.6 fatalities per 100,000 full-time equivalent (FTE) workers, up from 3.4 in 2020. This was the highest annual rate since 2016.

## Key findings from the 2021 CFOI

- The share of Black or African American workers fatally injured on the job reached an all-time high in 2021. Deaths for this group increased 20.7 percent over 2020.
- Workers in transportation and material moving occupations experienced a series high of 1,523 fatal work injuries in 2021 and represent the occupational group with the highest number of fatalities. This is an increase of 18.8 percent from 2020.
- Transportation incidents remained the most frequent type of fatal event in 2021 with 1,982 fatal injuries, an increase of 11.5 percent from 2020.
- Suicides continued to trend down, with an 8.9 percent decrease over 2020. ♦

Answers to quiz on page 5:
1. False; 2. True; 3. False; 4. True; 5. False

## Next Month's Topic: Machine guarding

Machine guarding plays a critical role in preventing machine-related injuries. OSHA's machine guarding standard at 1910.212 requires that any machine part, function, or process that may cause injury be safeguarded.

## Expert Help: Questions of the Month

***Question:*** **What are lifting tables?**

***Answer:*** Lifting tables are tables or platforms with spring-like mechanisms allowing the tabletop to raise or lower, often dependent on the amount of material placed on the top. These tables bring materials to waist level to reduce bending, stooping, or twisting movements.

***Question:*** **What types of work may involve hazardous manual lifting for adolescents?**

***Answer:*** Types of work could include:

- Working in warehouses;
- Delivering furniture and appliances;
- Retrieving, carrying, or stocking shelves with relatively heavy items;
- Working in healthcare settings where patients are lifted and moved; and
- Installing or removing carpet or tile. ♦



EDITOR: Jessica Stengel

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Home Office
100 Erie Insurance Place
Erie, Pennsylvania 16530
814.870.2000
Toll free 1.800.458.0811
erieinsurance.com

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