Controlling Ergonomic Hazards

There are many ways to reduce ergonomic risk factors and help fit the workplace to the worker. Solutions can be grouped into three main categories: eliminate the hazard, improve work policies and procedures, and provide personal protective equipment. Often the best solution involves a combination of approaches.

Eliminate the Hazard

The most effective way to control ergonomic hazards is to eliminate the risk factors altogether. Sometimes you can change the tools, equipment, job design, or work area to remove the hazard completely. This is called using "engineering controls."

These are some examples of engineering controls:

- Redesign workstations and work areas to eliminate reaching, bending, or other awkward postures.

- Provide adjustable tables and chairs that can be used by workers with a range of sizes and shapes, and that allow neutral postures.

- Provide carts for transporting material and mechanical hoists to eliminate lifting.

- Use tools that fit the hand, have no sharp edges, and eliminate awkward hand and wrist positions.

- Change where materials are stored to minimize reaching.

- Design containers with handles or cutouts for easy gripping.

Improving the workplace is the heart of ergonomics: changing the work to fit the worker. The design should accommodate the wide range of people assigned to the task.
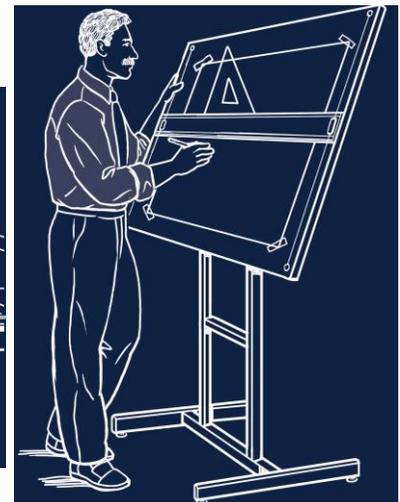
Improve Work Policies and Procedures

The next most effective solution is to develop work policies, procedures, and practices that change how the job is done. This is called using "administrative controls."

These are some examples of administrative controls:

- Rotate workers among different tasks to rest the various muscle groups of the body, reduce repetition, and ease mental demands.

- Improve work scheduling to minimize excessive overtime or shift work which can cause fatigue.

- Increase staffing to reduce individual workloads.

- Provide sufficient breaks, since adequate recovery time can reduce fatigue.

- Assign more staff to lifts of heavy objects.

- Encourage proper body mechanics and use of safe lifting techniques (see box on next page).

- Require all loads to be labeled with their weight.

- Store heavy objects at waist height.

- Follow good housekeeping practices. Keep floors free of slipping or tripping hazards. Maintain power tools properly to reduce vibration. Keep cutting and drilling tools sharp to reduce the force required.

- Provide workers with training on safe working postures, lifting techniques, ergonomics policies and procedures, and the safe use of lifting and carrying devices.

Training is a critical element of nearly any solution and provides an important opportunity for worker participation. However, it is not a substitute for reducing risk factors and should be used in combination with engineering and administrative controls.
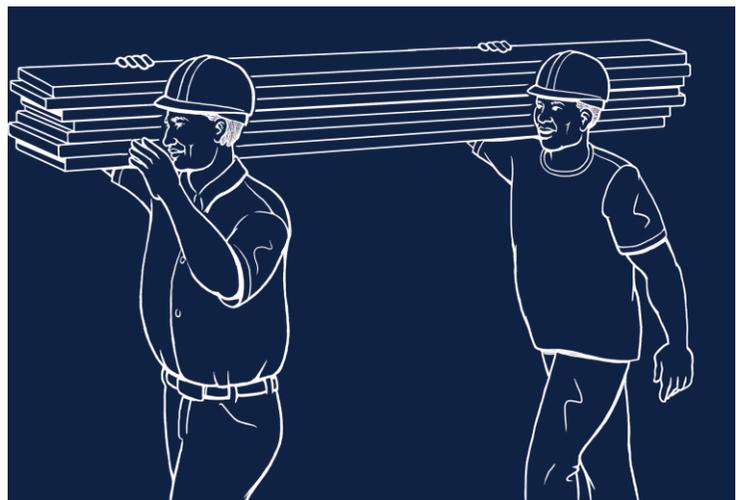
SAFE LIFTING TECHNIQUES

Lifting can put great strain on your back. Lifting from the floor can be particularly risky. For example, lifting a 25-pound box from the floor requires about 700 pounds of back muscle force, even when you bend your knees. Below are some tips that can help protect your back when you need to lift heavy objects.

- Try out the load first. If it is too bulky or heavy, get help.

- Avoid lifts that require stretching or bending to reach the load. Redesign the work area so objects you lift are close to the body and at waist height.

- Don't lift awkward objects such as long pipes or large boxes by yourself. Get help or use mechanical assists.

- When lifting, keep your back straight and lift with your legs.

- Lift slowly and carefully and don't jerk the load around.

- Keep the load as close to your body as possible while lifting it.

- Don't twist or turn your spine while carrying the load.

- Make sure your path is clear while carrying the object. Remove obstacles that could cause you to trip.

A program to teach workers how to lift properly should be used in combination with workplace redesign that reduces the amount of lifting needed. Remember, if materials are too heavy or awkward to lift and carry safely, get help, redesign the materials to be lighter and easier to handle, or use mechanical assists such as hoists, carts, or conveyors.

Provide Personal Protective Equipment

While more permanent solutions are being found and implemented, or if you are unable to redesign the job or equipment to eliminate risks, personal protective equipment (PPE) can be used.

PPE that can help address ergonomic problems includes:

- Knee pads for kneeling tasks.
- Shoulder pads to cushion loads carried on the shoulder.
- Gloves to protect against cold, vibration, or rough surfaces.

A CAUTION ABOUT BACK BELTS

Back belts are sometimes provided as PPE. Back belts have been studied extensively, and experts have concluded that they are not effective in preventing back injuries. Some believe that, in fact, they may cause injury by encouraging workers to lift heavier objects or by making muscles weaker. Most importantly, they do not make workers stronger or more able to perform a lift that is awkward or too heavy. The National Institute for Occupational Safety and Health (NIOSH) recommends that employers not rely on back belts to protect workers. Instead, it recommends that employers implement a comprehensive ergonomics program that includes workplace assessment, hazard reduction, and worker training.

Establish a Comprehensive Ergonomics Program

Employers should establish an ergonomics program to minimize musculoskeletal disorders. Elements of a good program include:

- Management commitment
- Worker involvement
- An organizational structure to get the work done, such as an ergonomics team or committee
- Training and education of workers and supervisors
- Job evaluation to identify risk factors
- Hazard prevention and reduction or elimination of risk factors
- Early detection and treatment of ergonomic injuries, and medical management of injury cases
- A system for workers and supervisors to report ergonomic problems, symptoms, and injuries without reprisal
- Ongoing evaluation of the ergonomics program.