

ERGONOMICS: A STEP-BY-STEP PROGRAM DEVELOPER

Manufacturing and production

Controls and solutions

- Use low vibration tools.
- Wear vibration-reducing gloves.
- Maintain tools regularly.

Ergonomics in manufacturing and production

Manufacturing and production operations involve a wide variety of job tasks. Workers in this industry group are exposed to many ergonomic risk factors. Depending on the job duties, a manufacturing/production employee can be exposed to several ergonomic risk factors simultaneously or at various times throughout a shift.

One way to understand how risk factors can be identified and controlled in the manufacturing/production workplace is to look at several examples of how some employers analyzed some of their jobs for ergonomic risks.

Risk factors

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Repetition

The first example of a job involving exposure to repetition is assembly-line work in which workers repeat the same motion every few seconds. But, there are many other examples of jobs where workers must repeat the same motion often enough to qualify as exposure to this ergonomic risk factor.

Machine operators typically need to load stock or product into the machine, operate the same sequence of controls, remove the processed product, and repeat these steps for a good part of their shift. Depending on the operation, these steps could be repeated as often as several times per minute.

Often equipment operation involves lifting, reaching, and twisting motions that are repeated frequently. Order picking, packaging operations, and even cleaning are other examples of jobs involving frequent, prolonged repetitive motions in a manufacturing/production setting.

Force

The obvious task that exposes manufacturing/production workers to force risk factor is lifting. Machine part changeovers can involve the need to lift parts weighing well over the 75 pounds. Pushing and pulling is another part of the force risk factor. Employees often load raw materials and in-

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process product onto carts and push or pull them to the next work station.

Pinching force is also a risk factor in manufacturing/production jobs. Workers may regularly need to use clips to hang small parts on coating, dipping, cleaning, or drying lines. Order picking and packing jobs can involve exposure to prolonged or repeated pinching force when workers are handling small parts.

Gripping force is another risk factor. Often, production work involves using heavy spring clamps to secure materials. Another example would be having to grip roll stock (such as fabric, paper, rubber sheeting, foil, etc.) and pull it down the length of a work table or feed it into machinery. Using tools is another example of how workers are regularly exposed to gripping force risk factors.

Awkward posture

Employees often need to work in awkward postures while doing repetitive motions. An example would be bending to lean over an assembly line or reaching to twist a control knob while operating a machine. However, manufacturing/production workers can often work in awkward postures during jobs that do not involve repetitive motions. During equipment maintenance, repair, or cleaning jobs, workers may need to kneel, squat, or raise their arms to reach machine parts.

Part of the normal manufacturing process can include some steps that require a worker to be in an awkward posture to reach and work on materials. Even if the operation is automated, a worker may need to routinely work with his or her neck bent to look up, down, or to the side to monitor gauges and controls.

And, using tools is a classic example of a task that regularly exposes workers to awkward bending of the wrists and hands.

Contact stress

Contact stress involves using the hand or knee as a hammer. Machine operators may need to regularly pound control buttons or use a knee to engage a control bar. Workers could be hammering with their hands to help remove parts from molds. Workers may also be pounding on stock with their hands or knees to help get it into position.