



Workplace Ergonomics/Carpal Tunnel/Repetitive Motion/Cumulative Trauma Injuries

Crippling injuries can afflict you & your workers after prolonged exposure to awkward work positions, forceful and/or repetitive motions. These injuries, known as repetitive motion injuries, cumulative trauma injuries, & carpal tunnel syndrome, occur when workers repeat actions without adequate time for their bodies to rest or recover. These injuries do not require lifting or moving heavy objects; simply leaning over a workbench that is too low during an entire work shift every day for weeks, sawing or hammering continuously for hours every day, & inputting computer data nonstop for hours every day can cause them. These injuries often necessitate costly surgery, prolonged absence from work for rehabilitation, & perhaps reassigning workers to other tasks due to permanent disability.

While the anatomy, physiology, treatment, & rehabilitation of these injuries can be complicated, preventing them can be easy & inexpensive by using good ergonomic practices. Ergonomics involves arranging work stations & tasks to minimize the stress they cause to workers' bodies. Good ergonomics not only helps prevent injury; it can also make your workers more productive by making tasks easier. This sheet addresses some basics of ergonomics; it is not all-encompassing. Your local chapter of the National Safety Council, OSHA, an industrial hygienist, or an ergonomist can provide in-depth guidance.

Ergonomics basics include:

• For clerical workers who sit:

1. Provide height adjustable chair, adjustable desk, and/or adjustable keyboard holder so workers will not have to work with wrists, arms, back, & neck at awkward angles;
2. Provide document holders so keyboard operators may view them at the same height as the computer screens to prevent holding neck at awkward angles;
3. Position computer screens within 15-20 degrees below the user's eye level;
4. Remind workers to take frequent momentary breaks to rest their necks, backs, eyes, & wrists;
5. Position computer screens away from windows or lights that cause glare; provide glare filters as needed;
6. Provide foot rests for shorter workers who are unable to keep feet flat upon the floor;
7. Provide headphones to free the hands of workers who do much phone work.

• For workers who stand in place:

1. Provide cushioned floor mats and/or cushioned sole shoes to relieve fatigue;
2. Provide foot rests or foot rails so workers may relieve back stress periodically;
3. Provide height adjustable or tiltable workbenches & bins or items upon which to stand so workers may work at comfortable angles;

4. Place frequently used items in a semicircular pattern within 14-16 inches in front of workers, other items within 24-26 inches.

• For workers at jobsites:

1. Provide tools with vibration/shock absorbing handles to reduce impact on hands;
2. Provide tools with ergonomically designed handles (e.g. *pliers*; *wire cutters*);
3. Arrange work to avoid bending wrists-wrist strength is greatest when it is straight;
4. Use power tools when tasks place too much stress upon worker using hand tools;
5. Hold pistol handle tools (e.g. *power drills*) at elbow height when working upon vertical surface; below waist with elbow straight when working upon horizontal surface;
6. Provide flange or sleeve to rest hand on straight-line tools used for downward vertical force; this reduces force needed for gripping;
7. Remove sharp corners or edges from tool handles;
8. If needed, wear gloves that cover only the area needing protection; those covering unneeded areas can reduce dexterity & require greater strength to do the task;
9. Consider equipping tools having 1-finger start/stop devices (e.g. *drill with trigger*) with start/stop devices manipulated by several fingers or thumb to reduce stress on trigger fingers;
10. Provide non-slip handles for hand & power tools.

• For workers using machines on your premises or at jobsites:

1. Keep the most frequently used control devices within easy reach (e.g. *start/stop devices*; *raising/lowering levers*);
2. Locate control devices or guard them so they are not inadvertently operated;
3. Minimize the number of control devices to prevent confusion;
4. Position emergency controls within 30 degrees of operator's normal line of sight; make them conspicuous & easily accessible;
5. Design hand controls to move in direction workers expect (e.g. *move joystick to the right to swing the machine to the right*);
6. Provide displays (e.g. *tachometer*; *speedometer*; *pressure gauge*) that show in contrast against their background & locate them to avoid glare;
7. Label displays conspicuously & design them to not be too similar to reduce confusion.

General concepts for any task & location:

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Practicing good ergonomics need not be costly. It can reduce injuries & in some cases increase worker productivity. Let workers' comfort guide them. Pain & fatigue indicate stress. Encourage workers to take momentary rest breaks often (*perhaps as short as 10 seconds*), to help recover from stress. Consider rotating workers: schedule #1 to task A for 2 hours & schedule her to task B for the following 2 hours. Observe your workers & the actions they take in their tasks. Notice pillows, self-made foot rests, etc.; these indicate workers feel discomfort. Ask workers for their ideas about how to design their tasks to minimize stress. Workers may think ergonomic changes (*e.g. adjustable chair having back supports*) are more uncomfortable at first; train workers how to use & adjust them & allow a few days to grow accustomed to them. Review the effectiveness of your ergonomic actions by speaking with workers, observing the presence of pillows, etc., & by reviewing injury/illness records; make changes as needed. Consult with an ergonomist, or health care professional for exercises your workers can perform to prevent injury.