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Office ergonomics is good business

As most safety people know, ergonomics is the science of fitting job tasks, workstations, and equipment to individual workers. Ergonomics looks at all aspects of a job – from the design of tools, tasks, and equipment, to adequate lighting and how the overall workstation is set up. And, its principles can be applied everywhere – in the workplace, at home, and to recreational activities.

Good ergonomic programs have several things in common. They focus on prevention, are a component of a holistic approach to occupational safety and health, and they can measure their value to the company through productivity gains, morale, and lower insurance costs.

A major benefit of good ergonomic design is, of course, fewer musculoskeletal disorders which translate into fewer OSHA recordables, lower incidence rates, less absenteeism, and a reduction in workers' compensation premiums. But, some of the intangible rewards you may not think about include improved productivity, less job turnover, worker comfort, and greater job satisfaction.

Desk job dangers

You don't have to be an ergonomist to do an effective ergonomic assessment of your office workers. Although doing a job assessment for ergonomic risk factors in an office setting may not be quite the same as on the production floor, many of the same risks will show up in various job tasks throughout the workplace. Knowing what to look for will probably alert you to more risk factors than you anticipated finding.

Almost everyone who works in an office setting spends a good portion of the day on the telephone or the computer, or both – jobs that make them prime targets for an assortment of ergonomic injuries. Awkward and static postures, contact stress, and repetitive motions are prevalent among people who spend hours sitting at a desk or workstation, such as:

- The call center workers who spend eight hours talking on the telephone and keyboarding at the same time.
- The computer programmer sitting for hours developing a new program.

- The administrative assistant reaching or stooping to file documents.
- Workers who spend the majority of their day doing data entry.

And many other office jobs that result in wear and tear on the body over a long period of time.

Don't forget training

The trouble is, this wear and tear occurs so gradually that most people don't realize what's happening until they're hurting. By then, the damage has been done. That's why early reporting and intervention are essential.

Awareness training that involves practicing good ergonomic techniques and recognizing the signs and symptoms of muscle stress before they become major problems is important. You may routinely include this type of training for workers on the production lines and on the shop floor, but never think of bringing it to those workers with sedentary jobs.

Ergonomic injuries around the office

Musculoskeletal disorders can result in soreness, numbness and tingling; a limited range of motion; weakness; and tenderness and swelling. Common disorders that show up in people who work in office settings are generally classified as cumulative trauma disorders. These injuries are caused or aggravated by repetitive motions, sustained or awkward postures, and compression; and they result in aching, tenderness, and numbness. Cumulative disorders that are frequently diagnosed in office workers include:

- Tendonitis inflammation, which occurs when a muscle or tendon is repeatedly tensed from overuse.
- Epicondylitis from overuse causes pain and tenderness in the elbow and forearm.
- Carpal tunnel syndrome caused by overuse compresses and entraps the median nerve in the wrist, causing pain, tingling, and numbness in the hand and fingers.

Assessments can tip the scale

When you're doing assessments for ergonomic risk factors in office jobs, there are some common workstation problems you need to be aware of which can be easily and, in most cases, inexpensively corrected. Encourage employees to practice ergonomically sound techniques when you find the following conditions:

Wrist planting

- When wrists are idle, they often rest on the sharp edge of the desk, causing pressure points between the wrist and the desk and damage to nerve and blood vessels. Float the wrists, don't press them on the edge of the desk.
- Use a wrist rest or support brace to keep the wrists in a neutral position.
- Do exercises about once an hour by gently shaking the wrists, fanning the fingers, and stretching the wrists by slowly pulling the fingers back or pushing them against a wall or edge of the desk.

Wrist and leg contact stress

- Float the wrists, don't press them on the edge of the desk.
- Remove jewelry from the wrist that uses the mouse.
- Tilt the chair seat pan slightly forward and raise the feet if necessary to relieve pressure on the back of the legs.

Mousing wrist, hand, and finger stress

- Use a variety of key strokes to relieve some mouse work.
- Take your hand off the mouse when it's not being used. Let the hand relax.
- Use a mouse that vibrates when it's not moved for some time as a reminder to remove the hand.
- Switch the mouse hand.
- Use different type or style of mouse.
- Maintain a neutral wrist with some space underneath and float the whole forearm along with the mouse. This allows the larger muscles to contribute to the task.

Lower back pain

- Maintain a supportive posture by placing both feet on the floor.
- Sit slightly over the desk.
- Sit with the back straight, buttock bones on the chair.
- Shift your position frequently.
- Get up and move around hourly.

Neck and shoulder pain

- Check the monitor placement. The top of the screen should be slightly below eye level. The middle of the screen should be about six inches below eye level.
- Use a hard copy document holder. Position it close to and at the same height and viewing distances the monitor screen.
- Use a headset. Don't hold the phone between the head and shoulder.
- Check the desktop/keyboard tray height. Arms should be in a neutral position and not reaching up or down.
- Sit close enough to the desktop and keyboard.
- Be sure the chair armrests not too high or the mouse and keyboard elevated. Shoulder elevation can cause pain.

Computer workstation adjustments

Chair

- Chair base: should have a five-point base.
- Chair height: adjustable so the legs are at right angles, the feet rest flat on the floor, the forearms are horizontal and at right angles to the upper arms, and the elbows should just clear the top of the work surface.
- Seat pan front edge: should be rounded and softly padded.
- Seat pan height: should be at the natural sitting height. Maintain two-to-three finger widths between the front edge to the back of the knee.
- Backrest height: lumbar support should be just above the tailbone.

- Armrest height: low enough to permit relaxed shoulders.

Keyboard and mouse

- Natural keying height: arms in a neutral position, wrists relatively straight.
- Palm rest: supports the palms, not the wrists. Should not be higher than the first row of keys on the keyboard.
- Alternative keyboard designs may work better for some users.
- Mouse should be at the same height as the keyboard.

Monitor

- Height: top of screen should be at or slightly below eye level.
- Height: area looked at most often should be 15° below eye level.
- Distance between eyes and screen: arm's length (16-29 inches).
- Swivel design: allows user to adjust for best viewing angle.
- Have adjustable brightness and contrast controls.

Simple solutions

You can minimize exposures and reduce risk factors to your office employees by:

- Knowing your employee demographics (height, weight, special needs) before selecting equipment and tools.
- Using the right equipment and tools for the job and adjusting them to fit the individual.
- Training on all features of ergonomically-designed equipment.
- Staying on top of new developments in ergonomic tools by ordering catalogs, visiting websites, and routinely visiting your local office supply stores.
- Providing training on proper ergonomic techniques, such as keying and mousing.
- Encouraging employees to practice self-assessments.
- Encouraging mini-breaks and moving around. Static postures reduce oxygen to muscles by restricting the blood flow – even a neutral posture can be static.
- Encouraging employees to change positions and stretch often. Stretching reduces joint pressure, muscle pain, and increases agility. Besides, it feels good to get up, stretch, and move around.
- Demonstrating the right ways to *reach* (bend from the waist, keeping the back straight); to *stand* (keep the back straight, don't bend over for prolonged periods); to *sit* (keep the back straight, relax the neck and shoulders, bend elbows at 90° angle, and keep wrists neutral), and to *lift* (keep back straight, feet apart, keep load close to the body, below waist height).
- Developing an ergonomics equipment lab where employees, both new and old, can try out chairs, mouses, foot rests, floor mats, and other types of ergonomically designed tools and equipment to pick what is most comfortable for them.
- Making occasional “audit sweeps” to check for ergonomic problems. Simple corrections can often be made immediately.
- Documenting problems and solutions such as where did it hurt, what have we done to correct it, and did it solve the problem.

- Use a PDA with an evaluation checklist to perform on-site ergonomic assessments.

Another avenue to explore

Finally, when you're doing an assessment, don't forget to look at records – records of recordable injuries and illnesses, first aid reports, absenteeism, and job transfers. Identifying ergonomic problems may be more difficult than identifying an injury from a single event; but with some investigation, you should be able to see where these conditions are prevalent.

Between performing job assessments for ergonomic risk factors and analyzing your records, you'll be able to focus on problem tasks and ultimately reduce those types of incidents. Although you may not be able to completely eliminate exposures, you can achieve your goal of identifying and minimizing risks and making ergonomically sound techniques and practices a routine occurrence in the office.