

Office Ergonomics: Optimizing Employee Comfort and Health

This WorkCare Fact Sheet features guidance to help prevent musculoskeletal disorders and other health impacts affecting office workers.

Ergonomics is the science of fitting a job to a person's anatomical, physiological and psychological profile in a way that enhances human efficiency and well-being.

In office settings, an ergonomically designed workstation helps reduce health impacts from overuse, prolonged sitting, glare and other factors.

Health Effects

Office workers are at risk of developing preventable musculoskeletal disorders (MSDs) associated with repetitive tasks such as keyboarding and using a mouse. There is also a higher than average likelihood of vision-related complaints and potential repercussions such as poor physical fitness.

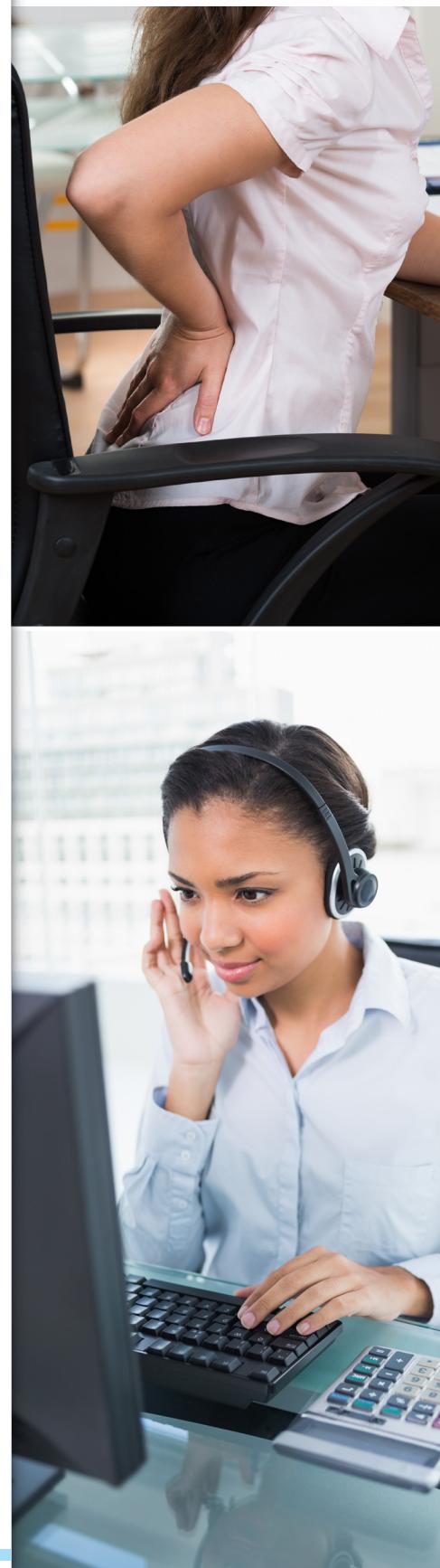
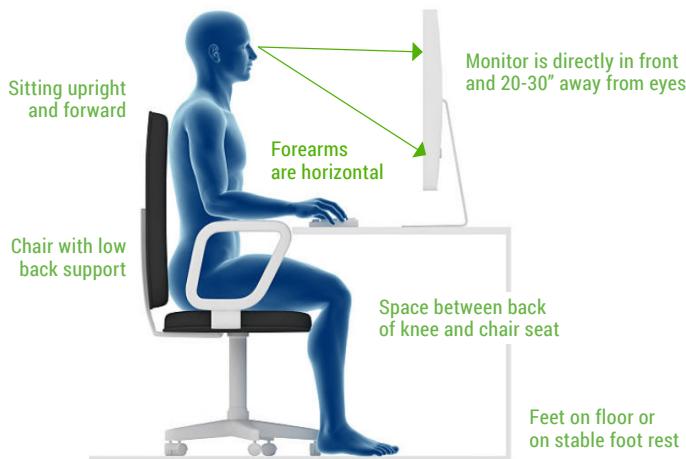
MSD symptoms may range from mild discomfort in the arms, hands or neck to persistent pain that affects sleep, the ability to work and overall quality of life. Warning signs of MSDs include aching, tenderness, tingling, numbness, weakness, swelling, and feeling the need to rub and flex affected body parts.

Vision issues may include headaches, blurriness or poor focus, and feeling eyes are tired, dry or strained. Inactivity may cause weight gain, affect cardiovascular health, and be a contributing factor in the development of chronic conditions such as hypertension or diabetes.

At the first sign of discomfort it is advisable for employees to obtain professional medical advice and employers to introduce targeted preventive interventions.

Ergonomic Workstations

Ergonomically designed office workstations are key contributors to workplace injury prevention and management initiatives. Each element of the workstation needs to be considered, along with the needs and fitness level of the individual user.



Start With the Chair

When seated, feet should be placed flat on the floor or on a footrest. The worker should avoid placing feet on the base or legs of the chair, and crossing or sitting on his or her legs.

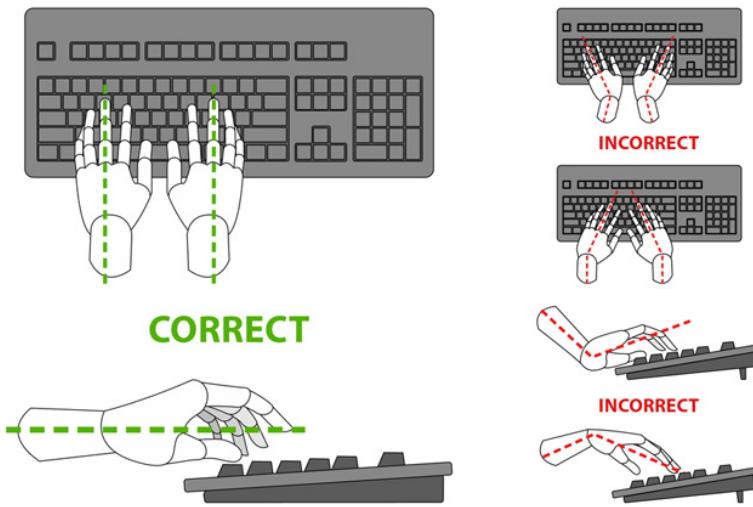
The seat should be adjusted to maintain a space between the knee and the front of the chair while providing back support. Thighs should be parallel with the ground. The backrest should be adjusted and locked in place to provide lumbar support after fitting it to the curve of the spine. The armrest should be positioned slightly below the elbow and only be used when resting, not while typing.

If the office has carpeting, it's advisable to place the chair on a pad with a firm surface. Chairs that are worn or have broken parts should be replaced.

About the Keyboard

Correct keyboard placement is essential for people who spend most of their day on a computer. The keyboard should be:

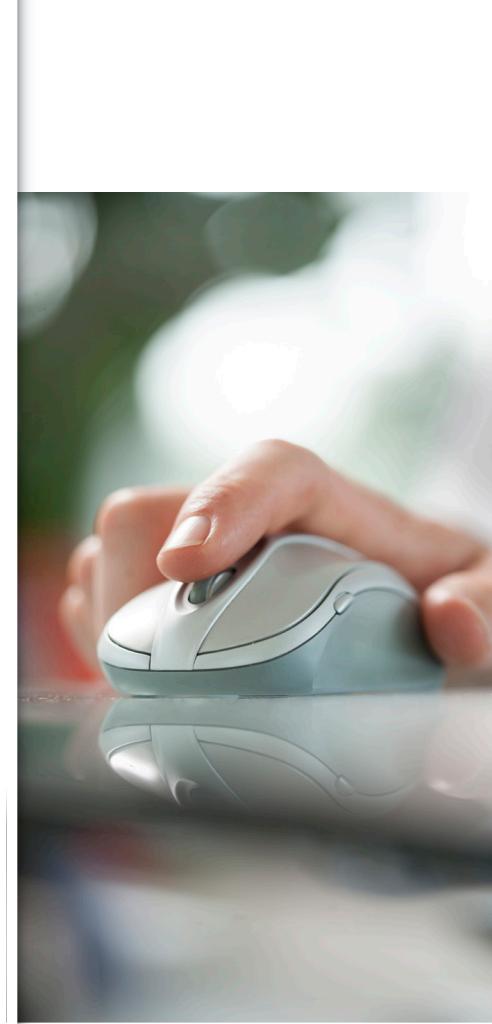
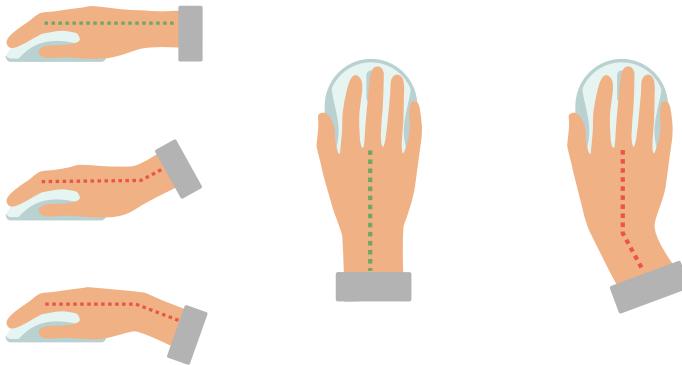
- Evenly centered directly in front of the user
- Have a slight downward tilt to encourage a neutral wrist position
- Placed so elbows are bent at a 90-degree angle
- Close enough to the body to minimize reaching
- Designed to match the employee's preferred work style



Using a Mouse

There are many different mouse designs on the market, with selection often depending on personal preferences and price points. Most of them are wireless. If using a wired mouse, the cord should be free of entanglements.

The mouse should fit comfortably in the operator's hand and adjusted to desired sensitivity. When using the mouse, the user should hold it gently and keep the hand relaxed. The elbow, not the wrist, should be the motion pivot point. A mouse pad placed alongside the keyboard provides proper traction and helps reduce reaching.



Monitor the Monitor

The way a monitor is placed can have a significant impact on a user's physical and emotional health. Incorrect positioning may cause fatigue, headaches, eyestrain, or back and neck discomfort. The following adjustments are recommended:

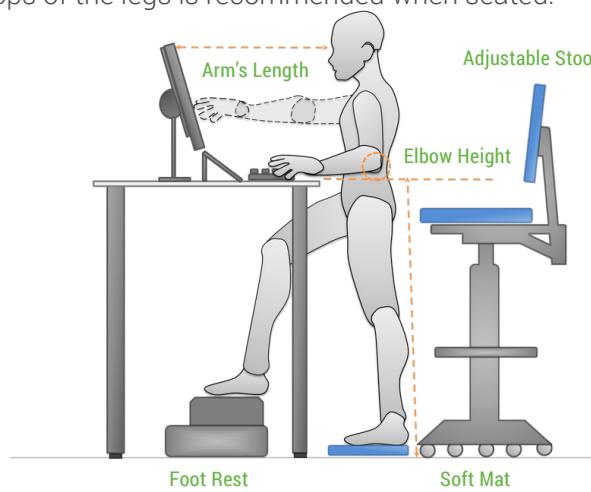
- Position the monitor so the top edge is at eye level. If it is too high, it can be slightly tilted forward. If it is too low, a stand or object may be needed to raise it to the appropriate height.
- Place the monitor about an arm's length away while seated.
- Check screen clarity and make adjustments, as needed (e.g., document, font and type size).
- If there is glare, use window coverings and adjust lighting. Avoid placing the monitor directly in front of a window.
- If using dual monitors, ensure there is enough space to have them evenly spaced to limit neck, shoulder and back movement. The screen should be angled in a slight "V" shape and touching in the middle.
- When referring to a printed document or other material while typing, it should be placed on a stand at eye level next to the monitor.



Best Desk

Decks styles vary greatly depending on office design and functions. Whatever type of desk is used – seated or standing – it should fit the worker's body type and physical abilities. The surface should be large enough to accommodate office equipment and materials but not so large that it requires reaching. Considerations to effectively use a sit-stand desk include desk height, monitor height, amount of time standing and use of an anti-fatigue mat.

If the desk is taller than average, the chair should be adjusted without lifting feet off the ground; otherwise a footrest is likely to be needed. If the desk is lower than average, it may be raised using secure blocks. Three to 6 inches of space between the desk and tops of the legs is recommended when seated.



Personal Comfort

There are a number of other ways to protect personal health and well-being while doing office work:

1. If using corrective lenses, consider wearing prescription glasses specifically designed for computer use.
2. Apply the 20/20/20 rule to minimize fatigue (every 20 minutes look at an object 20 feet away for 20 seconds).
3. Take frequent micro-breaks to stand and gently flex and stretch hands, shoulders, neck and back.
4. Drink plenty of water to stay well-hydrated throughout the workday.
5. Follow a consistent exercise routine, eat a healthy diet, limit alcohol, don't smoke and get enough sleep.

Are Sit-Stand Desks the Answer?

While desks that allow sitting or standing without disrupting workflow have gained popularity in recent years, they continue to be the subject of scientific study and debate.

A newly released study examines the effects of sit-stand desks in six domains: behavior (e.g. time sitting and standing), physiological, work performance, psychological, discomfort and posture.

Researchers reviewed 53 relevant articles and found that sit-stand desks effectively change behaviors (e.g., more frequently standing), but these changes only mildly effect health outcomes. "Sit-stand desks seem most effective for discomfort and least for productivity. Further study is needed to examine long-term effects, and to determine clinically appropriate dosage and workstation setup," they said.

Reference: April J. Chambers, Michelle M. Robertson, Nancy A. Baker; The effect of sit-stand desks on office worker behavioral and health outcomes: A scoping review; *Applied Ergonomics*, Vol. 78, July 2019.

Taking Care of Business

At workstations and common areas in the office, it helps to keep things clean and organized to improve efficiency, reduce trip and fall hazards, and avoid stress and anxiety caused by clutter. When workstations are shared, equipment should be easy to adjust. This saves time and prevents awkward movements, similar to making adjustments in a car after someone else has been driving it.

Finally, it is always a good practice to review work-related injury trends and audit environmental hazards in order to identify and address potential problem areas. Employees should be encouraged to immediately report work-related physical discomfort so interventions can be implemented and appropriate remedies introduced.

Related Resources

1. [Ergonomics, National Institutes of Health Office of Management](#)
2. [NIOSH Ergonomics and Musculoskeletal Disorders](#)
3. [OSHA Computer Workstations eTool](#)
4. [OSHA Prevention of Musculoskeletal Disorders in the Workplace](#)

