



ERGONOMICS: Simple Solutions to Prevent Injuries in the Office

AUDIENCE:

Personnel who work in an office environment

SMaFocus

HOW YOUR WORKSTATION IMPACTS YOUR BODY

Just as you begin typing on your keyboard, your phone rings. You lean over to your left to answer the call. As you continue to work on your computer with your phone pressed between your shoulder and ear, the person on the other end of the phone asks you to reference a paper. You reach to your right to access your file folder.



If you work in an office environment, this may sound like a typical workday. The constant reaching and leaning may seem harmless, but having a desk set-up that requires this much movement actually equates to poor ergonomics. Ergonomics is the science of designing the job to fit the worker, rather than physically forcing the worker's body to fit the job. Practicing ergonomics entails adapting the job, equipment and tools to the worker for optimal safety and productivity.

Repetitive motion—activities such as typing or mouse clicking—leads the way in causing ergonomic-related injuries in office environments, with most issues occurring in employees' wrist, hand and arm; or neck, back and shoulder.

Of the injuries related to repetitive motion, 70 percent cause injuries to the wrist, hand and arm, while the remaining 30 percent are neck, back and shoulder injuries.

In the world of ergonomics, seemingly subtle movements are considered unnatural, as your body isn't meant to twist and bend or sit still in a static posture, especially for extended durations of time. As a result of these unnatural movements in your office, you could end up seriously injuring your body.

WORK-RELATED MUSCULOSKELETAL DISORDERS

Musculoskeletal Disorders (MSDs) are injuries that affect your muscles, tendons and nerves. When repetitive strain injuries are caused by workplace risks, they are referred to as Work-Related Musculoskeletal Disorders (WRMSDs). Some specific risk factors include repetitive stress, awkward postures, forceful exertions (lifting), contact stress, static postures and ongoing vibrations.

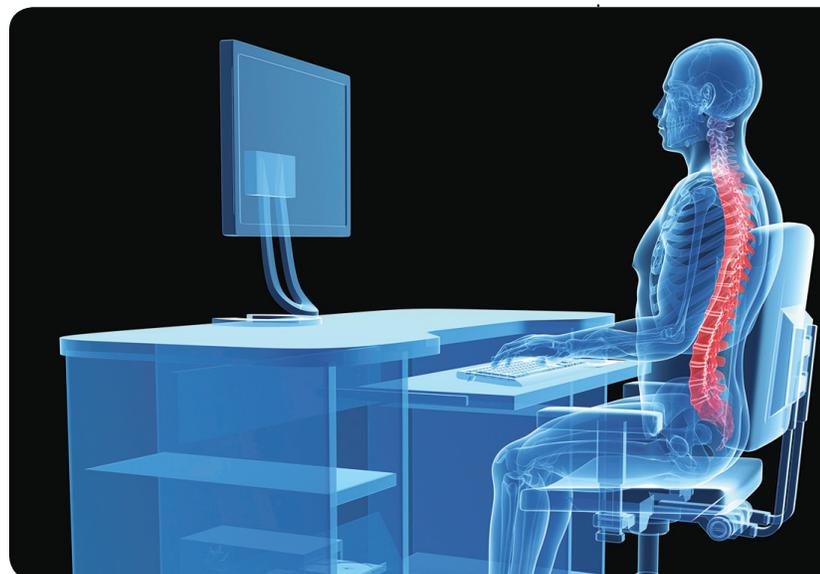
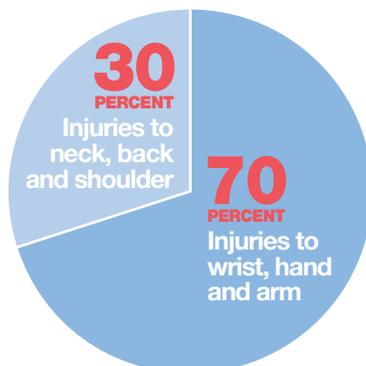
Review OSHA's [Ergonomics web page](https://www.osha.gov/SLTC/ergonomics/): <https://www.osha.gov/SLTC/ergonomics/>

Watch NSC's [Ergonomics Knowledge Byte](https://nsc.nasa.gov/features/detail/knowledge-byte-ergonomics): <https://nsc.nasa.gov/features/detail/knowledge-byte-ergonomics>

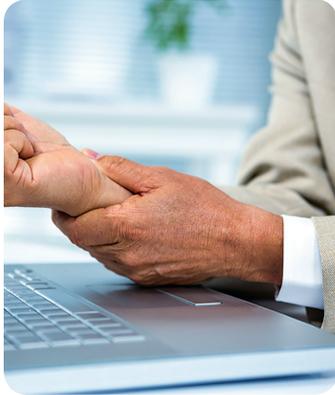
Take a Look at [Ergonomics: The Study of Work from OSHA](https://www.osha.gov/Publications/osh3125.pdf): <https://www.osha.gov/Publications/osh3125.pdf>

Check out AIHA's [An Ergonomics Approach to Avoiding Office Workplace Injuries and Illnesses](https://www.aiha.org/about-ih/Pages/an-ergonomics-approach-to-avoiding-office-workplace-injuries-and-illnesses.aspx): <https://www.aiha.org/about-ih/Pages/an-ergonomics-approach-to-avoiding-office-workplace-injuries-and-illnesses.aspx>

Injuries related to repetitive motion



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The effects of these risks can linger long after the activity ends. Constant repetition of typing, mouse clicking and reaching for your phone for an extended duration of

time can eventually lead to WSMDs. Carpal Tunnel Syndrome is one widely known office injury in which the body's peripheral nerves are compressed and traumatized. Other WSMDs include tendonitis, the inflammation of a tendon; and tension neck syndrome, the tenderness of the trapezius muscle.

PREVENTION IS KEY

The most important thing you can do to prevent WSMDs is to be aware of work that might place repetitive stress on parts of your body. You may be quick to blame technology for your aches and pains, but it's how you use and access these office essentials at your desk that cause and aggravate WSMDs. Some principals to remember are: maintain neutral body position; adjust your work station to your body, not your body to your workstation; minimize reaching and twisting; keep frequently used items easily accessible;

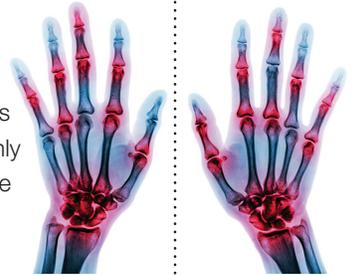
take frequent, short breaks. While monitoring your movements is certainly a huge factor in prevention, there are other methods that can help prevent an injury from developing or worsening:

Contact your Safety and Occupational Health Office

If you suspect that you might be suffering from a WSMD, or simply if you think your workstation isn't a good ergonomic fit for you, schedule a workstation evaluation. Your center's Safety and Occupational Health Office can help assess the ergonomic risk factors associated with your job. In addition to suggesting "quick fix" changes to your workstation or tasks, they can also provide suggestions on other ergonomic interventions such as better work station layout and equipment with better design. Remember that changing a work process or adding specialized equipment will only help if you apply the changes or use the tools and equipment correctly.

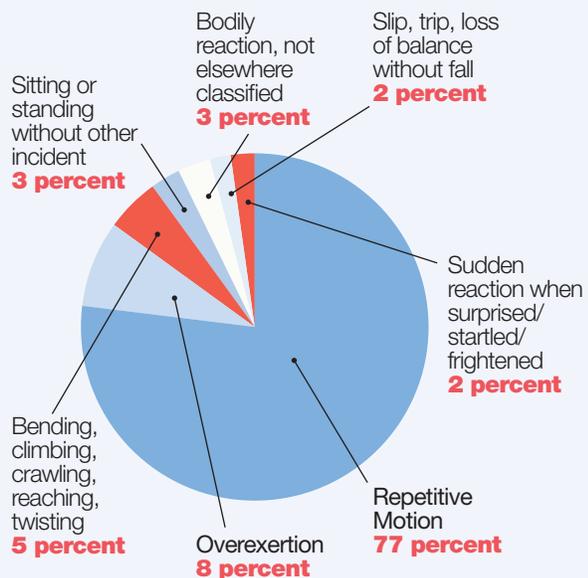
Schedule a medical examination

If you start feeling an ache or pain, do not ignore it. While approaching your doctor with a symptom of what you think may be an early warning sign of a WSMD may cost you a copay, that amount of money is nothing compared to a claim for work-related Carpal Tunnel Syndrome that costs nearly \$30,000 on average.



CAUSES OF OFFICE ERGONOMIC INJURIES AND ILLNESSES

When it comes to office tasks, repetitive motion is the main cause of WSMD at NASA. Of all the ergonomics mishaps that have occurred while performing office tasks in the past five years, 77 percent are due to repetitive motion. The following graph shows how employees are getting injured while performing seemingly harmless office work.



OFFICE ERGONOMICS CHECKLIST

Learning what ergonomic tools work for you as well as how to properly align your workstation may require some research and trial and error, but maintaining good habits does not have to be difficult. Writing yourself a reminder and hanging it above your desk is often the easiest and most effective way to remind yourself to practice good ergonomic habits. The following is a checklist to help you set up your workspace properly:

Computer Monitor

- Place the monitor directly in front of you with top of monitor at or just below eye-level.
- Avoid light coming from directly in front of or behind you.
- Save your eyes with a computer screen with anti-glare built in or use blinds, a curtain or a sunshield.
- Use a task light, such as a small table lamp, and turn off overhead lights.
- Consider using a document holder that rests in front of your keyboard to avoid looking down at papers when typing from printed materials.



Computer Keyboard and Mouse

- Position your keyboard so that your arms are at your sides with forearms parallel to floor and wrists neutral (not flexed or extended) while typing.
- Keep keyboard and mouse at the same level, adjust height of both to keep wrists neutral.
- Use wrist rests for your mouse and keyboard instead of resting your wrists on flat, hard edges.
- Consider using a keyboard without a ten key (key pad on the right) to have better access to your mouse.
- Explore some of the new ergonomic keyboard and mouse alternatives. Replace your mouse with a larger, ergonomically-shaped mouse and make sure it fits to the shape and size of your hand.



STOP. STRETCH. REPEAT.

One of the biggest culprits of ergonomic issues at NASA today is repetitive motions. Performing the same action every day for eight hours at a time, even if performed on correctly aligned equipment, will likely cause strain and injury. After years of similar actions, the chances of injury from the repetitive motions increase. In 2016, 54 percent of NASA's



workforce were between the ages of 45 and 59; those with more work experience need to be conscientious of unhealthy habits they've developed over the years.

It's just as important to be aware of static postures and keep track of how long you've been sitting at your desk. Make time in the day to stand up, stretch and walk around. Take a break from your workstation to help your cognitive performance as well as your musculoskeletal well-being.

When you do not make time for breaks from repeated tasks, it can result in insufficient time for your body tissue to repair. When you overlook these breaks for years, it can add up to a lot of tissue damage. Because static postures and repeated motions do not cause immediate pain, many people do not try to correct the action until they already have developed a WMSD.



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PROTECTING PRE-EXISTING CONDITIONS



Improper movements not only cause injuries, they can aggravate pre-existing conditions. Your current desk set-up may not be the root of your problems;

it's possible it's just worsening an injury you received elsewhere or a pre-existing medical problem. Injuries can be caused by activities outside of the office such as sewing, playing video games, practicing musical instruments, or participating in racket sports.

You may not know how severe your condition is until your repetitive actions at work aggravate the condition to the point of unbearable pain. Knowing the root of the issue is key to how you should address your ergonomic situation at work. Consider all of the things both inside and outside of the workplace that could be contributing to your injury, then make adjustments accordingly for a healthy lifestyle both at work and at home.

Laptop

- Consider using a separate monitor and keyboard, as long-term use of a laptop is not recommended.
- Explore laptop risers, as there are a variety of options for specific situations.
- Use an ultra-lightweight laptop and carry a bag with wide, comfortable shoulder straps, if you travel frequently.

Cell Phones and Tablets

- Invest in a hands-free device, such as a headset, to avoid awkward positions.
- Reduce the need for uncomfortable typing positions with speech recognition tools.



Desk

- Minimize reaching and twisting for frequently used items.
- Maintain adequate leg room under the desk with space for stretching.

Chair

- Use a chair with many adjustability as adjustable height, seat pan, back rests and lumbar support.
- Adjust your chair for a greater than 90-degree bend in knee. Fully sit back in your chair using lumbar support with knees slightly lower than your hips, with the back of your knee not resting on the chair.
- Do not use arm rests unless you are relaxing, not typing. Make sure there is one finger gap between elbow and arm rest when typing.



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