



INTRODUCTION

The average person spends approximately five hours and 41 minutes per day sitting at a desk.¹ In a year, the typical American spends about 2,000 hours at work.² Imagine spending that amount of time typing, filing, and staring at a computer screen. The repetitive actions of the workday and a poorly designed work environment can stress the bodies of employees, and can increase injuries such as muscle fatigue, pain and strained eyes. For employers, these injuries could lead to decreased productivity, reduced efficiency, loss of revenue, increased medical claims, and permanent disability. To avoid a loss, employers are now practicing workplace ergonomics with each new hire to ensure their workstation is fully optimized for their needs. This guide will explore what exactly makes up an ergonomic workstation, how they can benefit the workplace overall, and how to get create an ergonomic workplace.

¹https://www.sciencedaily.com/releases/2012/01/120113210203.htm

 ${}^{*}https://www.aiha.org/about-ih/Pages/an-ergonomics-approach-to-avoiding-office-workplace-injuries-and-illnesses.aspx$

WHAT IS ERGONOMICS?³

simplify. То ergonomics is when an employer adapts tasks, workstations, tools and equipment to reduce the physical stress put on an employee's body to eliminate discomfort. Ergonomics aims to design a complete and comprehensive workstation with all these factors in mind. If done correctly, ergonomics the in workplace will reduce the risk



factors that are associated with musculoskeletal disorders (MSDs), hence, minimizing the chance of injury or harm while doing everyday duties at work.

Creating a safe, comfortable, and productive work environment is the main goal of implementing ergonomics into any workplace. To make an office ergonomic, employers need to consider different scientific disciplines including biomechanics, physiology, psychology, anthropometry, industrial hygiene and kinesiology. Once this is looked at, office managers can figure out how they will implement ergonomic office products, office furniture, and tasks to reduce the strain employees put on their bodies from the workplace.

WHAT ARE MUSCULOSKELETAL DISORDERS & HOW DO THEY RELATE TO OFFICE ERGONOMICS?

Musculoskeletal disorders are common injuries in offices where ergonomics are not properly implemented. In fact, Musculoskeletal Disorders account for 33 percent of all worker injury and illness cases.⁴



Common disorders include:⁵

- · Carpal tunnel syndrome
- \cdot Tendinitis
- · Rotator Cuff injuries (shoulder)
- · Epicondylitis (elbow)
- Trigger finger
- Muscle strains and lower back injuries

Some causes of the above

Musculoskeletal Disorders include awkward postures, forceful exertion or strain, contact pressure, exposure to vibration, poor fitting furniture, equipment, and more. For Musculoskeletal Disorders to heal, muscles and tissues need time away from the cause to recover.

If an employee has discomfort or pain related to one's current workstation, a person could develop long-lasting injuries that will require time away from the office.

Some early warning signs that someone might have a Musculoskeletal Disorder:

- \cdot Pain in fingers, wrists or other parts of the body
- Tingling or numbness
- \cdot Discomfort in the neck, shoulder or back
- \cdot Muscle tightness, cramping or discomfort
- \cdot Range of motion loss
- · Discomfort in certain positions
- \cdot Clumsiness and loss of coordination

⁴ https://www.osha.gov/SLTC/ergonomics/

⁵ http://ergonomics.ucr.edu/signs_symptoms.html

BY THE NUMBERS: OFFICE ERGONOMICS FACTS & STATISTICS

Musculoskeletal disorders are the leading cause of pain, suffering and disability in the American workplace. $^{\rm 6}$



THE MOST COMMON MUSCULOSKELETAL INJURIES⁷

MSDs are the most prevalent, costly and preventable workplace injuries in the U.S. 8 One million people take time away from work because of musculoskeletal pain. 9

THE COSTLY EFFECTS OF MUSCULOSKELETAL DISORDERS¹⁰

MSDs cost U.S.	The lifetime cost for an
companies \$20 billion	injured worker with
every single year	carpel tunnel is \$30,000
MSDs are the	\$1 out of every \$3 is
reason for 34% of	spent on workers'
lost workdays	compensation claims

⁶ http://ergo-plus.com/cost-of-musculoskeletal-disorders-infographic/

⁷ http://ergo-plus.com/cost-of-musculoskeletal-disorders-infographic/

 ${}^{s}http://healthresearchfunding.org/high-cost-of-work-related-musculoskeletal-disorders/$

° https://www.researchgate.net/profile/Ted_Rooney/publication/8961989_Effect_of_Office_Ergonomics_

Intervention_on_Reducing_Musculoskeletal_Symptoms/links/09e41506c199011f2c00000.pdf ¹⁰ http://healthresearchfunding.org/high-cost-of-work-related-musculoskeletal-disorders/

WHO IS AFFECTED BY MSDs?¹¹



WHAT ARE THE BENEFITS OF WORKING IN AN ERGONOMIC OFFICE?¹²

When employees feel relaxed and have furniture and products designed to fit their health needs, it will show through their work and improve office morale. Additionally to reducing the risks of Musculoskeletal Disorders, there are countless other benefits of working in an ergonomic office.

Reduced fatigue: Employees with ergonomic workspaces report feeling less tired at the end of the day. When an employee's muscles and body are properly supported, one will feel less fatigued and have more energy throughout the day.

^{11,} http://healthresearchfunding.org/high-cost-of-work-related-musculoskeletal-disorders/

¹² http://www.kareproducts.com/introduction-ergonomics-101-ke-331_332.html

Reduced workers' compensation claims: Employers spend an estimated \$15-20 billion every year in Workers' Compensation costs for missed workdays.¹³ Ergonomic injuries are some of the most manageable in the office. Implementing ergonomics in the office can reduce the frequency and severity of workers' compensation claims.



Increased productivity: If employees spend hours at work trying to get comfortable, chances are they won't be able to concentrate as well. With a decrease in musculoskeletal symptoms, employees reported higher productivity, especially when outfitted with an ergonomic chair.¹⁴

Reduced absenteeism: Injuries such as sore backs and carpel tunnel syndrome lead to employee absences and lost productivity. Ergonomics can help reduce injuries, because employees' risk of injury will lessen and they will be comfortable at their workstations.

Lower employee turnover: Part of a successful working environment is creating a safe workplace for everyone to enjoy. Focusing on ergonomics shows that an employer is willing to invest in its employees' well-being, which can lead to higher employee engagement – all adding up to less employee turnover.

¹³ https://www.soundergonomics.com/cost-of-injury.html

¹⁴https://www.researchgate.net/profile/Ted_Rooney/publication/8961989_Effect_of_Office_Ergonomics_ Intervention_on_Reducing_Musculoskeletal_Symptoms/links/09e41506c199011f2c000000.pdf

HOW TO CREATE AN ERGONOMIC WORKPLACE

Creating a completely ergonomic workplace is a multi-step process and begins by assessing potential hazards and conducting a full-evaluation of the workplace. An employer would start by looking at each employee's workstation. Most musculoskeletal injuries happen because of body position, posture, poor fitting office furniture, and/or the placement of supplies and furniture. Here is a comprehensive checklist of how to create an ergonomic office.

CHOOSE THE PROPER OFFICE CHAIR

Finding the appropriate chair is the first step in improving the ergonomics of a workspace, especially if employees suffer from sore backs and/or sprains.

An ergonomic office chair usually features the following: {}^{\scriptscriptstyle 15}



- · Adjustable lumbar support
- Back support that maintains the natural "S" curvature of the spine
- A built-in angle that allows you to sit without leaning forward
- \cdot A slightly inclined backrest
- \cdot Adjustable armrests

- Allows for different seated postures
- \cdot Adjustable seat height
- \cdot Soft, rounded seat edges
- \cdot Adjustable seat depth
- A high backrest or headrest for deeply reclining positions

 $^{\scriptscriptstyle 15}\,https://www.aiha.org/about-ih/Pages/an-ergonomics-approach-to-avoiding-office-workplace-injuries-and-illnesses.aspx$

THINK ABOUT IMPLEMENTING SIT-STAND WORKSTATIONS

For health conscious employers, this is a great option to have as it gives employees an option to sit or stand while completing tasks. There are products available that convert sitting desks into standing workstations. In addition to improved posture, sit-stand workstations offer employees the following benefits:¹⁶

- · Reduced risk of obesity
- · Reduced risk of type 2 diabetes
- \cdot Reduced risk of other metabolic problems
- \cdot Reduced risk of cardiovascular disease
- \cdot Reduced risk of cancers
- · Lower long term mortality risks



ASSESS MOUSE & KEYBOARD PLACEMENT

An adjustable keyboard and mouse tray will help achieve an ergonomic workstation. Here are other considerations:¹⁷

- · Pull your keyboard up close
- Ensure mouse and keyboard are as close together as possible
- Position the keyboard so the "b" key is in front and centered with your desk
- \cdot Tilt your keyboard dependent upon your sitting position
- \cdot Build in palm support for keyboard can help wrists rest
- \cdot Keep hands as straight as possible when using a mouse or keyboard



¹⁷ http://lifehacker.com/5755870/how-to-ergonomically-optimize-your-workspace

DON'T FORGET ABOUT DESKTOPS

The placement of all other items on desks is important when assessing how to make an office ergonomic. Here are placement suggestions to consider for all other desktop items:¹⁸



- · Center your monitor directly above your keyboard
- \cdot Position it 2-3 inches above seated eye level
- \cdot Sit an arm's length away from the screen
- Reduce glare on monitors by placing it at right angles to windows
- \cdot Place your telephone within easy reach
- \cdot Telephone stands or arms can help achieve this
- · Use a headset or speakerphone when available.

IMPROVE EMPLOYEE POSTURE

Once everything from furniture to desktop items is arranged for best ergonomics practices, paying attention to posture everyday is the next step. Here are a few steps to help improve posture:

- Change up your body positions periodically throughout the day
- Limit the amount of neck twisting and bending
- \cdot Be mindful of slouching
- \cdot Try to remain centered throughout the day
- · Avoid ear to shoulder neck positioning
- \cdot Try to relax your neck and muscles



 ${}^{\scriptscriptstyle 18}\,https://www.aiha.org/about-ih/Pages/an-ergonomics-approach-to-avoiding-office-workplace-injuries-and-illnesses.aspx$

CONCLUSION

When implemented correctly, an ergonomic office will be designed to fit the each worker's tasks and needs. Proper ergonomics leads to a boost in employee morale and productivity, a reduction in musculoskeletal injuries and even a lower employee turnover rate. Rearranging a workstation to create an ergonomic setting will improve posture, reduce eyestrain, and relax muscles. Since musculoskeletal injuries are one of the most prevalent injuries noted in the workplace, ergonomics can minimize these issues and help provide employees with a safe and comfortable working environment.

REFERENCES

- American Industrial Hygiene Association (AIHA). An ergonomics approach to avoiding office workplace injuries and illnesses. Retrieved August 8, 2017 from <u>https://www.aiha.org/about-ih/Pages/an-ergonomics-approach-</u> <u>to-avoiding-office-workplace-injuries-and-illnesses.aspx</u>
- Amick III, Benjamin C., et al. (2003). "Effect of Office Ergonomics Intervention on Reducing Musculoskeletal Symptoms." SPINE, vol. 28, no. 24, pp. 2706–2711., <u>www.researchgate.net/profile/</u> <u>Ted_Rooney/publication/8961989_Effect_of_Office_Ergonomics_ Intervention_on_Reducing_Musculoskeletal_Symptoms/ links/09e41506c199011f2c00000.pdf</u>
- British Psychological Society (BPS). (2012, January 15). Office workers spend too much time at their desks, experts say. ScienceDaily. Retrieved August 8, 2017 from <u>www.sciencedaily.com/releases/2012/01/120113210203.htm</u>
- Gordon, W. (2011, February 09). How to Ergonomically Optimize Your Workspace. Retrieved August 9, 2017, from <u>http://lifehacker.</u> <u>com/5755870/how-to-ergonomically-optimize-your-workspace</u>
- Health & Science Research Blog (2014, December 08). High Cost of Work Related Musculoskeletal Disorders. Retrieved August 9, 2017, from <u>http://healthresearchfunding.org/</u> <u>high-cost-of-work-related-musculoskeletal-disorders/</u>
- Middlesworth, M. (2015, July 23). The Cost of Musculoskeletal Disorders (MSDs) [Infographic]. Retrieved August 9, 2017, from <u>http://ergo-plus.</u> <u>com/cost-of-musculoskeletal-disorders-infographic/</u>
- Occupational Safety and Health Administration (OSHA), U.S. Department of Labor. (2000) Ergonomics: the study of work. Retrieved August 8, 2017 from <u>https://www.osha.gov/Publications/osha3125.pdf</u>

- Occupational Safety and Health Administration (OSHA), U.S. Department of Labor. (2013). Ergonomics. Retrieved August 8, 2017 from <u>https://www.osha.gov/SLTC/ergonomics/</u>
- Sound Ergonomics. Cost of Injury. Retrieved August, 9 2017 from <u>https://www.</u> <u>soundergonomics.com/cost-of-injury.html</u>
- Stromberg, J. (2014, March 26). Five Health Benefits of Standing Desks. Retrieved June 27, 2017, from <u>http://www.smithsonianmag.com/</u> <u>science-nature/five-health-benefits-standing-desks-180950259/</u>
- What is Ergonomics? (2016, June 28). Retrieved August 8, 2017, from <u>http://</u><u>www.ergonomics.com.au/what-is-ergonomics/</u>