



Office Ergonomics

Training Materials:

- Office Ergonomics PowerPoint
- What you need to know about Ergonomics Factsheet
- Ergonomics and Working from Home Factsheet

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<https://www.pef.org/departments/health-safety/>

*Funded in part by
the NYS Department of Labor Hazard Abatement Board
Occupational Safety & Health Training & Education Grant*





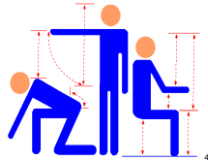
Understanding Ergonomics

Takes into account worker variations

- Size, Shape, Strength, Capabilities

By looking at:

- How jobs are designed
- How the body works
- How we think, perceive, process information, make decisions and respond to stress/ strain



4

What Are We At Risk For?

Ergonomic Injuries

- Work Related Musculoskeletal Disorders (MSDs), mostly of the upper extremities
 - Sites – wrist, neck, shoulder, etc.
 - Preceded by pain, numbness, discomfort, etc.
- Vision Problems



5

What Are MSDs?

- Work Related MSDs have many names (cumulative trauma disorders, repetitive stress disorders, overexertion illnesses)
- Onset can be acute but most often occurs slowly, over time
- Affects muscles, tendons, nerves, blood vessels, spinal discs
- Symptoms can include pain, burning, tingling, numbness and weakness
- MSDs can be associated or exacerbated by work

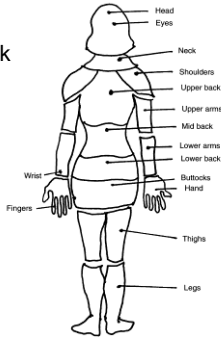


6



Which Body Parts Are Affected?

- Upper back
- Low back
- Shoulders
- Hips
- Knees



- Wrists
- Hands
- Elbows
- Forearms
- Neck



7

Work Related MSDs Are Associated With:

- Highly repetitive work & rapid hand movements
- Contact Stress - compression of soft tissues, nerves, blood flow
- Sustained stressful, awkward & static postures
- Applying Force
- Heavy Lifting
- Individual factors (e.g., preexisting MSD or systemic disease, such as diabetes)
- Poor work organization/ psychosocial factors
- Environmental conditions (e.g., poor lighting, temperature extremes, noise)



8

Common Discomforts



- Back aches
- Neck and shoulder discomfort
- Leg cramps
- Wrist pain
- Eye strain



9



Ergonomic Risk Factors

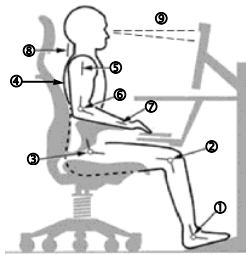
- ❑ Static and non-neutral postures
- ❑ Unsupported positions
- ❑ Twisting and leaning to one side
- ❑ Leaning forward
- ❑ Slouching



10

In the Office: Where Do We Start? Get Comfortable & Supported

**** Line up: Chair → Keyboard → Monitor**



Face the keyboard and monitor

Neck, upper back and shoulders supported and relaxed

Mid and low back supported

Arms near sides and open to more than 90°

Forearms can be supported

Feet supported as if flat on the ground



11

What Equipment Is Important For Working From Home?

- Ergonomic equipment if available, If not- **GET CREATIVE!**
- A stable and supportive chair
- A table about the same height of a desk
- A space with good lighting
- Pillows or towels
- Boxes and binders
- External mouse and keyboard if you have them



12



WFH: Where Do We Start? Get Comfortable & Supported



** Line up: Chair and Laptop



- Face the keyboard and laptop
- Mid and low back supported against the back of the chair
- Feet supported as if flat on the floor
- If you have an external keyboard- it should be centered with the laptop
- If you have an external mouse- it should be positioned next to the keyboard

13

13

Workstation Design



Desks, Tables, Stands:

- 24-28" adjustable if possible
- Different heights for reading vs. computer work
- Room for chair & keyboard tray
- Room for equipment & tools
- Leg room under the desk
- Equipment and files used most in easy reach
- If keyboard and mouse on table – adjust chair so arms are neutral



14

14

Monitor



- Between light fixtures
- Height adjustable monitor or use reams of paper to raise or lower
- Viewing area (top line of monitor screen) in line with eyes or slightly below
- Distance 22" -38"
- Viewing and Distance *depend upon vision and/or corrective lenses
- Corrective Lenses: anti-glare or anti-reflective coating

15

15



Workstation Design



Follow your chin! Keep it in a neutral position

- If your chin is raised, your monitor is too high
- If your chin is tucked and dropped, your monitor is too low
- If your chin is way out in front, your monitor is too far away



16

16

Laptop



- Place your laptop centered in front of you
- If using an external mouse and keyboard- use a small box or binder to raise your laptop
- If not- recline the screen so you are comfortably looking at the screen



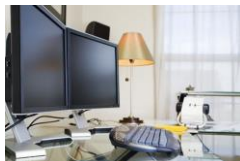
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17

Dual Monitor



- What work tasks are you doing?
- Two monitors centered vs. One monitor centered
- Laptop used as second monitor



18

18



Sit to Stand Desks



- Help to vary your work position
- Static Sitting vs Static Standing
 - Take Microbreaks for 5 minutes or less

Tips and Tricks for

Sit to Stand Desks & Workstations:

- Don't hit the point of fatigue
- Determine what tasks are best for sitting vs. standing
- Check for proper positioning when you are sitting and standing
- Wear proper shoes for standing
- Use a timer to remind yourself to move

Resource: <https://www.mountsinai.org/care/occupational-health/services-programs/employer-services/ergonomics-injury-prevention>

19

Keying Surface



- Rounded edges (if table surface)
- Full size keyboard and mouse
- Fully articulating /adjustable keyboard tray
- Room for Mouse next to keyboard
- Elbows >90°
- Distance
 - Arms comfortably at sides – don't reach out
 - A little farther OK if forearms supported



20

20

Keying Surface



- On tray:
 - Elbows supported by chair arms or hovering over
 - Negative tilt or flat
 - Room for mouse
- Rounded edges (if table surface)
- Alternative (split) keyboards optional (make sure they fit!)



21

21



Additional Equipment

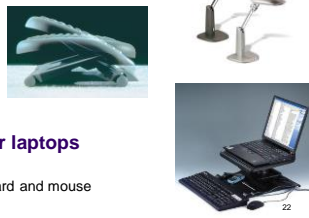
Mouse

- > Fits your hand
- > Level with keyboard
- > Don't reach to side or forward for it
- > Alternative pointing devices



Others

- > Document holders
- > Slant stands
- > Foot rests
- > Chair mats



Add-on accessories for laptops

- > Laptop stand
- > Wireless full-sized keyboard and mouse

22

Ergo Equipment



23

Ergo Equipment (cont'd)



24



Working from Home Quick Tips!



25

Ergonomic Chairs

Size

- Petite (5'3" and under), Average and Large

Easily Adjustable - Operator able to adjust while sitting:

- Height
- Backrest (up & down, tilt, upright locking mechanism)
- Lumbar support
- Seat Pan - tilt (tilting slightly forward may benefit those with low back pain)
- Padded Arms (height & width)



26

Vision Controls

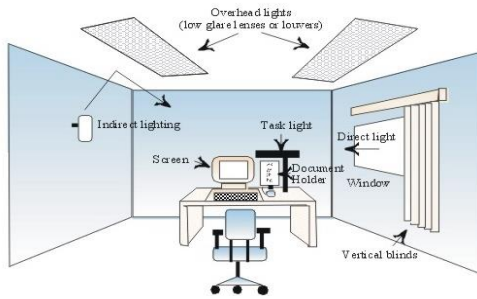
- Use blinds, drapes or shades to block direct sun
- Do not sit directly under a light fixture
- When sitting near windows- the windows should be on your sides rather than in front or behind you
- Use small table lamps if possible
- Screen:
 - Adjust brightness/contrast
 - Clean the screen!



27



Room Set Up – Looking Good



http://www.umdj.edu/eohssweb/ergo/part_two/2page01.htm

28

28

Vehicle Ergonomics: How to Adjust your Seat



1. Make sure your seat is at a good position to see the road clearly over the steering wheel
2. Check for adequate head room
3. Move the seat forward to be able to easily depress the pedals
4. Adjust seat cushion tilt to allow for support along the length of the upper leg
5. Avoid pressure behind the knee
6. Adjust back rest so it provides support to the whole back and it is in contact up to shoulder height



29

29

Work Practice & Administrative Controls



Rest and recovery!

- Frequent micro breaks- (5 minutes or less according to CDC)
 - Get up from your chair
 - Drop your hands in your lap
 - Get some water, stretch, etc.



Static vs Dynamic Work:

- Get your blood flowing – with gentle stretches and exercises

30

30



Work Practice & Administrative Controls (cont'd)



Adjust work area to fit you

- Adjust heights and angles

Work in neutral postures

- Optimal seated posture
- Don't press palms on hard surfaces
- Good back and foot support

Pace yourself

- Low-strain movements to reduce repetitive motions
- Spread out workload
- Recognize early strain symptoms
- Take recovery periods

31

31

Proper Workstation Set Up



Let's compare....

What's wrong with these pictures?

How can we fix them?

32

32

What's wrong here?



- Reaching for keyboard
- Cradling phone
- Heel of hands on desk
- Mouse too far
- Task light next to monitor
- Crowded desk



33

33



Let's Fix It!

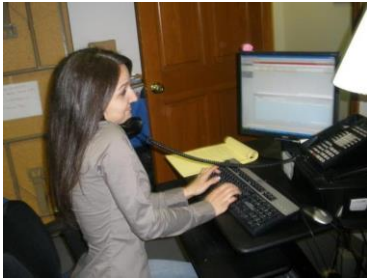
- Task light raised to provide light on document holder and reduce reflected glare on monitor
- Lumbar pillow provides good back support
- Chair, keyboard monitor in line
- Sitting closer to keyboard
- Telephone headset
- Neutral wrist position
- Mouse is in reach
- Document holder now in use
- Arms and shoulders relaxed
- **note – chair arms still too high....



34

34

What's wrong here?



- Cradling phone on shoulder
- Heel of hands on table edge
- Mouse in front of keyboard
- No document holder
- No back support
- Monitor at angle

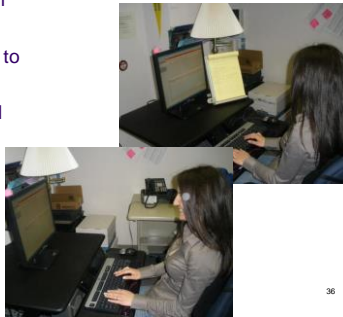
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35

Let's Fix It!



- Document holder now in use
- Wrist rest guides hands to proper keying position
- Mouse next to keyboard
- Keyboard moved onto adjustable tray
- Arms and shoulders relaxed
- Arms in neutral
- Chair, keyboard and monitor in a line



36

36



What's wrong here?



- Crowding under desk
- No leg room
- Feet propped on toes
- Contact stress on thighs
- Keyboard tray not used



37

37

Let's Fix It!



- Chair lowered so feet flat on floor
- Lumbar pillow provides good back support
- **note – chair arms still too high....*



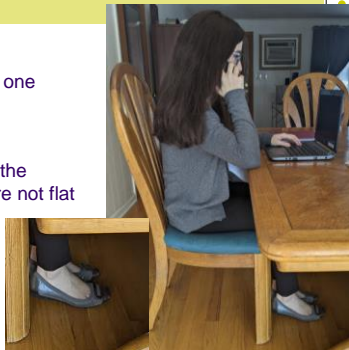
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38

What's Wrong Here?



- Elbow on table
- Trying to type with one hand
- No back support
- Toes are touching the ground- but feet are not flat on floor
- Looking down at monitor



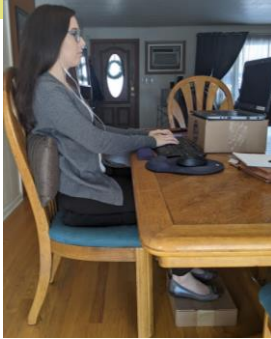
39

39



Let's Fix It!

- Using headphones
- Typing with 2 hands
- Laptop is raised to eye level
- Added keyboard and mouse
- Added wrist rest and mouse pad
- Raised up using pillow
- Used a pillow for lumbar support
- Used box for foot rest
- Necessary items in reach

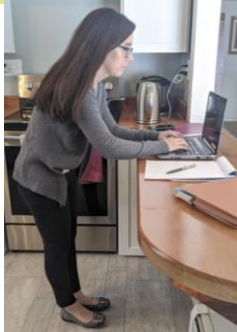


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What's Wrong Here?

- Bent over
- Laptop too low
- Resting arms on table
- Standing on hard surface

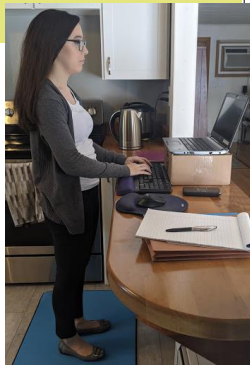


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41

Let's Fix It!

- Laptop is raised to eye level
- Added keyboard and mouse
- Added wrist rest and mouse pad
- Arms are in neutral position
- Used a yoga mat to pad the floor
- Necessary items in reach



42

42



What Other Ergonomics Courses Does PEF Offer?



Office Ergonomics Direct Training- (2-2.5 hours)

- Basics on office ergonomics
- Teaches participants to set up their own workstations

Driving and Vehicle Ergonomics for Field Staff (2 hours)

- Teaches proper ergonomic vehicle set up
- Use of devices while in field status

Ergonomic Assessor Training- (Full day ~6 hours)

- Teaches participants on the principles of ergonomics
- Educates participants on performing ergonomic assessments

Contact PEF H&S at 800-342-4306 ext 254 to set up training

43

43

Resources



PEF Health and Safety:

<https://www.pef.org/departments/health-safety/>

PEF Ergonomics Factsheet:

<https://www.pef.org/wp-content/uploads/2022/07/Ergo.pdf>

PEF Working from Home Factsheet:

https://www.pef.org/pef_files/files/pdf/Working-from-Home-Ergonomic-Factsheet.pdf

Mt. Sinai Ergonomics:

<https://www.mountsinai.org/care/occupational-health/services-programs/employer-services/ergonomics-injury-prevention>

44

44



Please contact PEF Health & Safety for more information

or with any questions at:

1-800-342-4306, ext. 254

E-mail: healthandsafety@pef.org

45

45



What you need to know about ... **Ergonomics**

-PEF OSH Factsheet-



What is Occupational Ergonomics?

Ergonomics means the science of work. Ergonomics seeks to design work systems, processes, tools, equipment and tasks that take into account variations in size, shape, strength and capabilities of working people- a.k.a. Fitting a job to a person.

What are the Goals of Occupational Ergonomics?

The goals of an occupational ergonomics program are to improve safety, comfort, work efficiency and work performance (improve quality, reduce errors).

What are the Risk Factors of Occupational Ergonomics?

Ergonomic exposures to risk factors can lead to Musculoskeletal Disorders (MSDs), otherwise known as ergonomic injuries. Examples of risk factors involved in the office environment/ computer work may include:

- ◆ **Biomechanical-** Awkward postures, Repetitive motions, Compression of soft tissues, Sustained or static muscle loading, Forceful movements
- ◆ **Organizational-** Psychosocial (Interpersonal relationships between staff), Social isolation, Decision control, Insufficient rest and recovery pauses, Deadlines, Fast work pace, Forced overtime, Shift work
- ◆ **Individual-** Gender, Age, History of preexisting injury/ pathology, Systemic disease (e.g., diabetes, thyroid disorders, rheumatoid arthritis), Family and social networks

Prolonged exposure to risk factors, particularly in combination or at high intensity, is likely to cause or contribute to MSDs, or aggravate the severity of pre-existing MSDs.

How to Learn More

The PEF Health & Safety Program is funded in part by an Occupational Safety and Health Training and Education (OSH T&E) grant from the NYS Department of Labor Hazard Abatement Board to provide training on H&S topics. These topics include our Ergonomics Programs:

- ◆ Office Ergonomics Direct Training (2- 3 hours)
- ◆ Ergonomic Assessor Training (Full Day- 6 hours)
- ◆ Vehicle and Driving Ergonomics for Field Staff (2-3 hours)

Funding from this grant provides for PEF Health & Safety to deliver trainings and for training materials. There is no cost to the Agency, other than providing adequate release time for employees to participate. We usually ask that you have a minimum of 15 people for training classes. Workshops are open to any Agency employee, PEF, CSEA, and M/C staff, as well as any other agencies or partners (County or private sector employees) that may be in the building/facility. The trainings are tailored to meet the relevant needs of the target group in cooperation with labor and management representatives.

To schedule trainings on ergonomics or other health & safety topics please contact the PEF Health & Safety Department at 1-800-342-4306, ext. 254 or at HealthandSafety@pef.org.

Where Do We Start?

Although we are all different sizes, shapes, strengths and capabilities, the following steps will assist you in achieving a proper ergonomic set-up:

1. Line up: the Chair → Keyboard → Monitor

- Center the Monitor, Keyboard, and Chair
- Place the Mouse directly next to the Keyboard
- See **Figure 1**

2. Begin Setting the Position of your chair (See **Figure 2** for points of reference)

① **Feet:**

- Place your feet flat on the ground, slightly in front of you

② **Knees:**

- Raise the chair to allow your knees to be at an angle greater than 90 degrees

③ **Hips:**

- Recline your seat far enough to allow your hip joint to also be at an angle greater than 90 degrees

④ **Back:**

- Make sure your back is fully supported by the chair. The back rest should support up to the shoulder blade.

⑤ & ⑥ **Arms:**

- The shoulder should remain in a relaxed position. The angle of the elbows should also rest at an angle greater than 90 degrees

⑦ **Wrists/Hands:**

- Hands and wrists should remain straight and in a relaxed position.

⑧ **Head/Neck:**

- Your chin should remain parallel to the floor and desk surface.

⑨ **Eye Sight:**

- The line of site should hit the top portion of the screen

3. Near by items: Keep items frequently used near by

- As seen in **Figure 1** items of necessity such as paper, pen/pencil, and telephone are near by.
- The white area should be about the length of your arm, 22"-38".
- The remainder of the space is beyond your reach, this can be used for items used less often.



Figure 1: Alignment and Desk Set-up

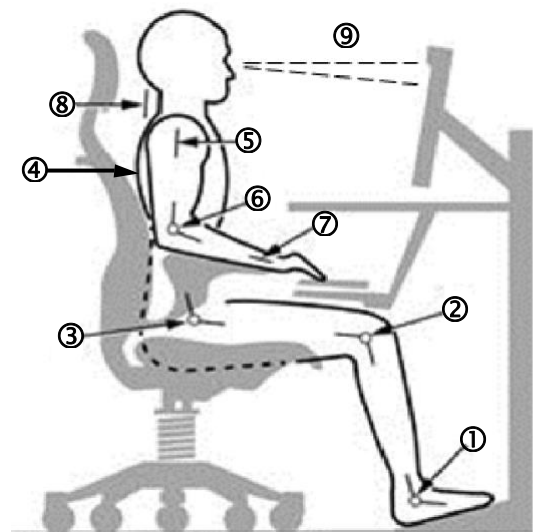


Figure 2: Chair Alignment and Set-up



Ergonomics and Working from Home

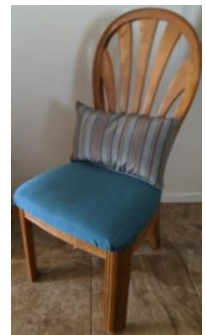


The Coronavirus pandemic has caused many more employees to work remotely than ever before. While some essential worksites remain open and fully staffed, others have all or staggered remote schedules for workers. While this greatly lowers the risk of COVID exposure for workers, it can present a number of challenges to working safely and comfortably from home, and even increase the risk for repetitive strain or other similar injuries. How do we best set up our home or remote worksites to lessen the chance of suffering those types of injuries?

Too often, workers who try to fit into the space and equipment they have, rather than adjusting the space to better fit themselves. Think of this as fitting the worker to the job. This can lead to awkward and uncomfortable postures and eventually to repetitive strain injuries. To rectify this, we rely on **Occupational Ergonomics**, (which means the science of work) to help. Using Ergonomics we can design work systems, processes, tools, equipment and tasks that take into account variations in the size, shape, strength and capabilities of working people/Think of it as fitting the job to a person.

In an office or fixed work location, it may be easier to have a proper ergonomic set up at your desk there, compared to working from home or alternate remote location. But there are solutions, such as these quick tips to help improve your at-home workstation:

- 1. Work from a table or desk.** Working from a couch can be tempting, but it is important to work from a surface that will allow you to build an ergonomically correct workstation. This may be a dining room table, a personal desk, or any mid height table.
- 2. Utilize a supportive chair.** If you have an adjustable office chair available to you, take advantage of it and use it. If not, find a chair with a full back and a rounded or soft front edge to the seat. You want be able to sit all the way back in the chair, to fully support your back, your thighs should rest on the chair evenly from your hip to your knee, feet flat on the ground, and make sure the back of your knee is not rubbing on a hard front edge. You may wish to use pillows or rolled up towels for a lumbar support, seat cushion, or back rest.
- 3. Working from a laptop.** Laptops were created to be portable. It is very convenient to have your computer fold up and go where ever you go. However, many workers are now using them as their primary workstation while working remotely. Laptops tend to be less adjustable and smaller work- surfaces than fixed computer stations.



If possible, use your laptop as a monitor and raise it up with a laptop stand, box, or binder to bring the top of the screen parallel with your eye sight. Then use an external keyboard and mouse to complete your workstation, similar to an office setting (as pictured to the right).



If you do not have the supplies and equipment to do this, rest the laptop flat on the table and recline the screen until you are able to sit upright without tucking your chin to see the screen.

- 4. Keep items of need in close proximity.** Supplies you need to do your daily tasks should be kept close to you. Your keyboard, mouse, and monitor should be in your immediate reach. Other items that may be nearby are your phone, paper, pen, and documents you are currently working on (as pictured to the right).



- 5. Remember to take frequent breaks.** The CDC recommends frequent breaks of 5 minutes or less. These breaks can be as simple as standing and shaking out your hands and wrists for a few seconds, or cupping your hands over your eyes to give them a break from the screen. While working from home you should remember to take these breaks throughout the workday.



Posture while Working from Home

Begin setting the position of your chair (see the figure for points of reference)

① Feet:

- Place your feet flat on the ground, slightly in front of you. If your feet do not reach the ground, place a foot rest or box under your feet that is high enough to allow your feet to firmly touch the top.

② Knees:

- Your knees should be at an angle greater than 90 degrees, having your feet out in front of you helps you get into this position.

③ Hips:

- If you are sitting against the back rest of your chair, your hip angle should be at 90 degrees (upright) or slightly greater angle (slightly reclined).

④ Back:

- Make sure your back is fully supported by the chair. The back rest should support up to the shoulder blade at minimum. You can use a towel roll to create a lumbar support if needed.

⑤ & ⑥ Arms:

- The shoulder should remain in a relaxed position. The angle of the elbows should also rest at greater than 90 degrees while working.



⑦ **Wrists/Hands:**

- Hands and wrists should remain straight and in a relaxed position.

⑧ **Head/Neck:**

- Your chin should remain parallel to the floor and table surface.

⑨ **Eye Sight:**

- The line of site should hit the top portion of the screen this can be achieved by reclining your screen when working on a laptop or the laptop can be elevated using a laptop stand, box, or binder with an external mouse and keyboard.

It is important that you pay attention to any signs of trouble from working in awkward or sustained postures. Early warning signs may include tingling, numbness, or pain in the wrists, hands, fingers, neck, buttocks, thighs, lower legs or feet. It is your body telling you that an adjustment needs to be made. By ignoring these early warning signs you put yourself at serious risk to develop significant problems later, such as carpal tunnel, tennis elbow, neuropathy and many other repetitive strain injuries.

The good news is that by making some adjustments, taking micro-breaks and the other good ergonomic practices mentioned earlier, you can help avoid problems down the road.

This factsheet and many others were developed and produced by the NYS Public Employees Federation Health and Safety Department. If you have any questions or need assistance with ergonomics or any other workplace health and safety issue, please contact the PEF Health & Safety Department at 1-800-342-4306, ext. 254 or at HealthandSafety@pef.org.

**Funded in part by a NYS Department of Labor Hazard Abatement Board
OSH Training and Education Grant**

Produced by the New York State Public Employees Federation

Wayne Spence
President

Joe Donahue
Secretary-Treasurer

DEC Office Ergonomics Guidance



If you liked one of the Corcraft chairs at today's 2023 EAP Health & Wellness Fair, please consult with your supervisor.

Please note that a computer workstation evaluation or reasonable accommodation is not necessary for a supervisor to authorize replacement of desk chair that is broken or have sufficient ergonomics features/adjustability to properly fit the user. If the chair is not broken and it is not clear whether it may be causing an ergonomics hazard, the supervisor can request assistance by completing an Ergonomics Evaluation Request form and submitting it to the Health and Safety Unit.

Suggested Corcraft Ergonomic Chairs

Ithaca Ultra Mid-back w/Pivot Arms

ITHUMMBPA350006

Ithaca Ultra Mid-Back w/Pivot Arms, Petite Style

ITHUMBPASMBLK

CXO High-back w/o Headrest

CXOHBBLKNH

Reasonable Accommodation Requests

If you are seeking specialized office equipment such as, a sit-stand workstation, non-standard mouse (e.g., joystick/ball), split keyboard, or reduced lighting, you should complete a Reasonable Accommodation Request form and submit it to your supervisor or the Personnel Office.

DEC Health and Safety Ergonomics In-Site Webpage

Find additional ergonomics information such as, Supervisor's Ergonomics Evaluation Request Form, set-up guides/checklists, ergonomic products, and more, see the Ergonomics Webpage, which can be found on In-Site at: <https://nysemail.sharepoint.com/sites/DECInSite-OER/SitePages/Ergonomics.aspx>



Contact DEC Health and Safety Unit

Phone: 518-402-9381

E-mail: HealthandSafety@dec.ny.gov