UNIVERSITY OF SASKATCHEWAN

Office Ergonomics: A Self Help Manual

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Table of Contents

DEFINITIONS AND IMPORTANT INFORMATION 1

MUSCULOSKELETAL INJURIES 2

ADJUSTING YOUR CHAIR 3

ADJUSTING INPUT DEVICES 5

ADJUSTING YOUR MONITOR 6

DOCUMENT HOLDERS 7

OFFICE LIGHTING 8

LAPTOP COMPUTER USE 9

TELEPHONE USE 9

WORK ORGANIZATION 10

OFFICE STRETCHES 11

MATERIAL HANDLING IN THE OFFICE ENVIRONMENT 12

FILING 13

STORAGE OF MATERIALS 13

STANDING TASKS 14

Definitions and Important Information

Ergonomics Definition:

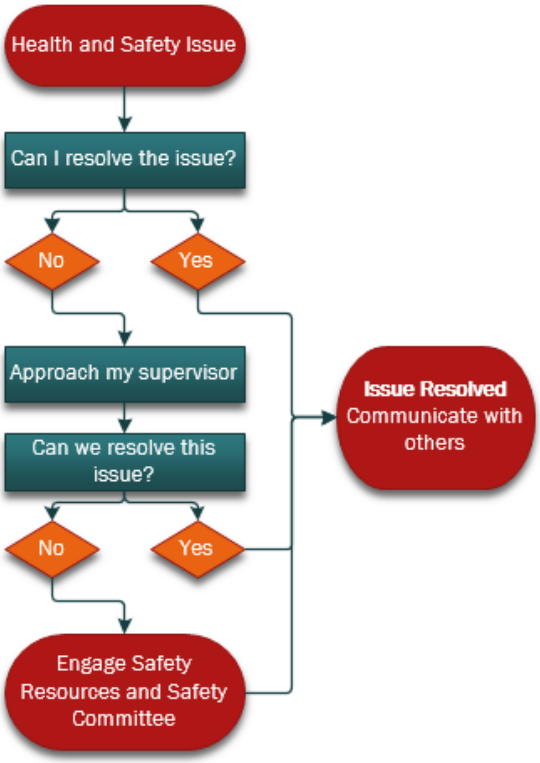
"Ergo" to work "nomics" natural laws of a system. Ergonomics seeks to fit the job to the individual rather than fitting the individual to the job.

How to Use this Document:

This document provides basic guidelines that will allow you to proactively set up and/or adjust your office equipment to reduce risk of musculoskeletal injuries (MSI) and protect your health. It supplies practical advice on conducting office tasks safely and workstation setup. This includes material handling, ergonomic factors, stretches, and the nature of MSI.

If desired results have not been achieved or symptoms are still persistent after following the Office Ergonomics: A Self Help Manual, please contact Safety Resources by calling 306-966-4675 to set up a consultation with one of our Ergonomic Systems Specialists (ESS).

When in doubt, always follow the workflow below when a health and safety issue arises:



Disclaimer:

The guidelines presented in this manual are voluntary and may not be suitable in every situation. This guide is not intended to address specific injuries, restrictions or medical conditions. In these situations an ergonomic professional should be consulted.

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For more information visit www.safetyresources.usask.ca or call 306-966-4675

Musculoskeletal Injuries

Components of the Musculoskeletal System

- Ligaments
- Tendons
- Muscles
- Joints
- Nerves
- Blood Vessels

What Causes Injuries?

Certain actions can lead to fatigue, discomfort, or pain when you do them over and over without a break. Some examples of this include:

- Exerting **force** to perform a task or to use a tool
- Working in **awkward postures**, such as bending or twisting the back, overhead reaching, kneeling, or stooping
- Remaining in a **sustained posture** (i.e. sitting, standing) for an extended length of time with little or no movement
- Continuous pressure from a hard surface or edge on any part of the body, which is also known as **contact stress** (i.e. forearm is in continuous contact with desk edge while keyboarding)
- Working in hot or cold temperatures
- Holding equipment that **vibrates** (i.e. the handle of a pressure washer)

Watch For These Signs & Symptoms:

- Pain
- Swelling
- Cold hands
- Numbness
- Weakness
- Changes in skin colour
- Tingling
- Decreased range of motion

If You Develop Any Symptoms:

- Notify your supervisor about the symptoms you have identified
- Follow the instructions under the *How to use this document* section

Report any injuries to your supervisor immediately.

For more information, visit www.safetyresources.usask.ca

Adjusting Your Chair

The chair is your most important piece of office equipment as it must support and promote posture for your entire body.

Seat Height

- Adjust so the edge of the chair is just below your kneecap.
- Your knees should be level with or slightly lower than your hips when sitting.
- Feet should be flat on the floor and knees no less than a 90 degree angle.
- If your feet do not reach the floor, use a footrest.

Seat Depth

- There should be 3-4 finger widths between the back of your calf and the seat front edge.
- If your chair has this adjustment, set the seat pan accordingly.

Backrest/Lumbar Support Height

- Adjust the backrest height so the lumbar support contacts the curve of your low back; approximately at your beltline.
- If there is a lumbar firmness control, adjust to your comfort level.

Making small adjustments to your chair and using features such as the recline function (if available) throughout the day can help to prevent fatigue.

Backrest Angle

- Use the backrest consistently and do not lean forward to use the monitor.
- Adjust the backrest angle so you have a slight recline angle to start. This is usually the most comfortable position. You can cycle between more upright positions varying the trunk and seat pan angle (if available), as desired.

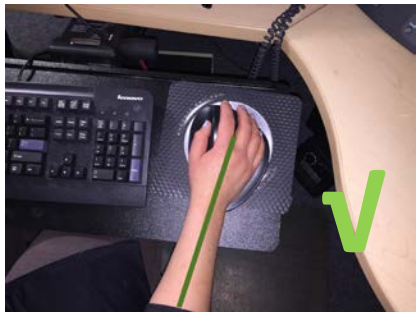
Armrests

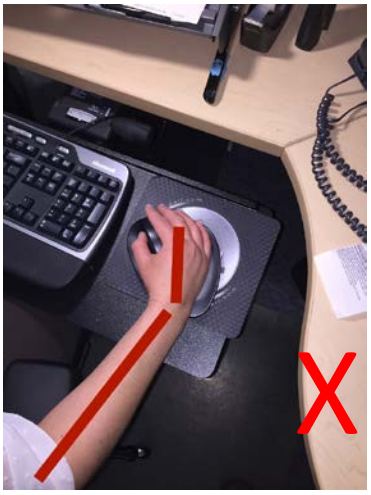
- Adjust the armrest width and height so your arms are hanging close to your sides and they are well supported without pushing your shoulders higher than normal.
- If you do not want to use the armrests, they can be removed or lowered.

Your chair can make a difference to your health. If your chair does not seem to be working properly, make arrangements to have it inspected and repaired. Contact http://facilities.usask.ca/

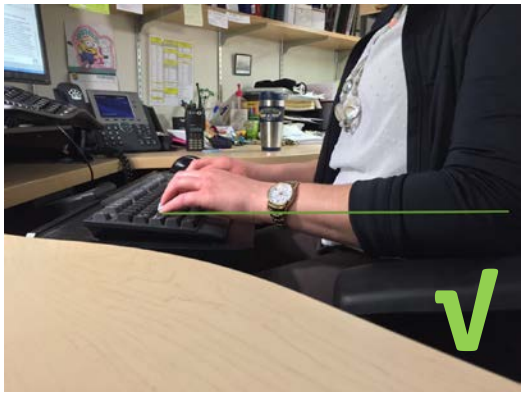
Adjusting Input Devices

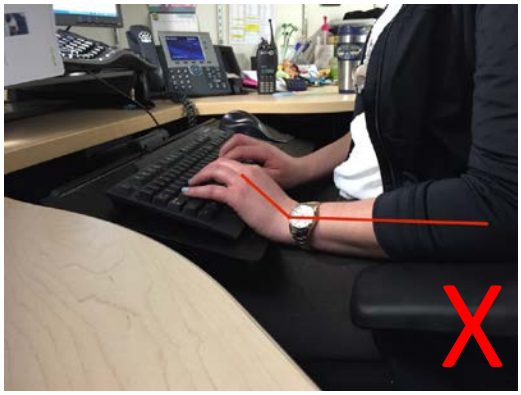
- Place your mouse immediately beside the keyboard.
- Do not use the mouse with your arm extended.
- The mouse size should be appropriate for your hand size.
- Adjust your mouse position so your wrist is straight and not bent.





- Your palm should not be anchored to the palm rest when moving the cursor sideways.
- Adjust your keyboard tray height so the arms are about parallel to the floor.





- Adjust your keyboard tray tilt so your wrists are straight when fingers are on the home row.
- Position your keyboard so you are in line and not typing off to one side.
- Palm rests can help reduce contact stress at the wrists and promote neutral wrist postures.
- If you prefer continuous arm support while keyboarding, adjust your chair armrests

Consider using the mouse on the alternate side occasionally to divide the workload between the two hands. If you have hand, wrist or forearm symptoms, an ergonomically designed keyboard or mouse may be beneficial.

Adjusting Your Monitor

Monitor Height

- Adjust the monitor height so the top of the screen is about level with your eyes (adjust accordingly dependent on your prescription eyewear).
- You should not have to look up to clearly view any part of the screen.

Monitor Distance

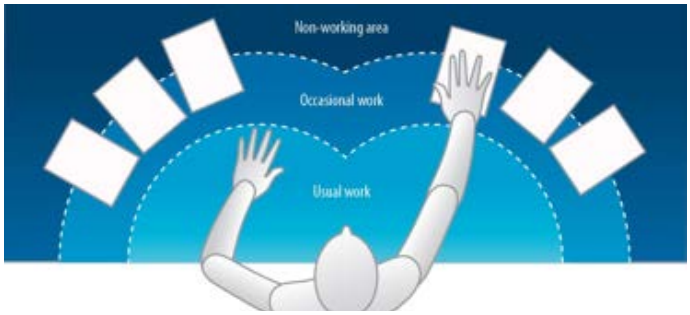
- 18-30 inches or 45-76 centimeters from eyes to screen is optimal depending on the font size.
- Quick check: have the monitor no closer than an arm's length when sitting.

Monitor Position

- Place the monitor directly in front of you, not to the side.
- Multiple monitors should be at the same height, distance and tilt, and angled toward the user as necessary.
- If one monitor is used more than the other, position that monitor in front of you and the other to the side.
- Adjust the brightness and contrast settings so the screen is comfortable to view (usually brightest setting possible).
- Follow any instructions that come with your monitor and/or operating system to adjust the display for your maximum comfort.

If you wear progressive lenses, you may need to have the monitor adjusted accordingly dependent on your prescription eyewear. This helps to avoid unnecessary tilting of the head, which can lead to neck strain and discomfort.

Workstations



- Place frequently used items on the desktop within easy reach.
- Avoid clutter under your desk.
- Give yourself enough room to move freely.

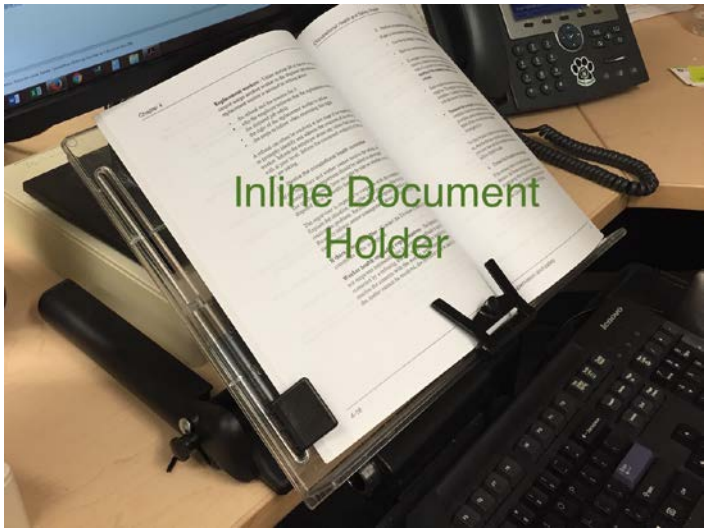
- Avoid awkward working positions, overreaching and awkward reaching.

- The CPU can be stored on the desktop, in an under-mount bracket, or on a wheeled cart for easy access.
- USB extended cords or peripherals with USB ports (monitors, keyboards) can be useful if frequent USB port access is required.

Document Holders

If you frequently refer to documents as you type they should be placed conveniently. If they are located to the side, then it may create a risk for neck, shoulder, and back strain.

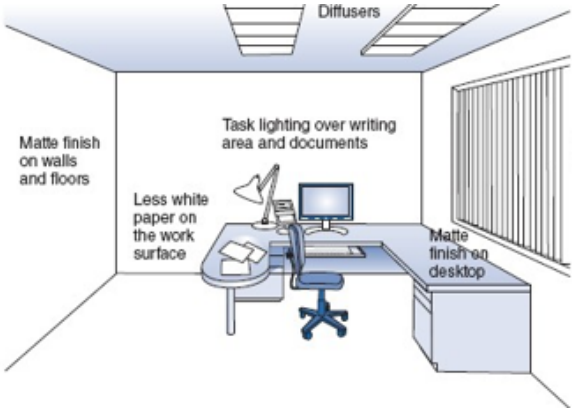
- The optimum position for documents is directly in front of you. An in-line document holder is suitable for larger or heavier items, such as double wide files, spreadsheets or books. If sturdy enough, it can also function as a convenient writing surface.
- Take regular breaks to rest the eyes by using the 20-20-20 rule: look at something 20 feet (6 meters) away for 20 seconds every 20 minutes.
- Blink rate is reduced when viewing the monitor and this can contribute to dry eyes. Post a reminder to “Blink” on your monitor.



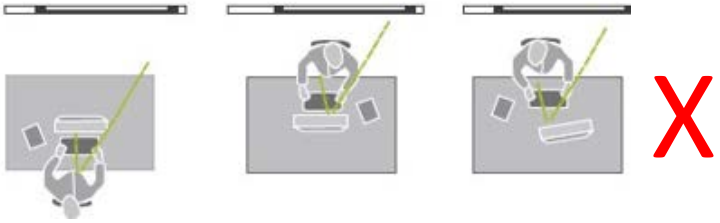
- Straining to view objects on the screen can lead to eye fatigue.

Office Lighting

Modern offices have several potential sources of glare; overhead lighting, windows, reflected light from walls and furniture, improperly placed task lighting, and ambient lighting. Uncontrolled glare can cause eyestrain.



- If possible, orient your workstation so any windows are at 90 degrees to your monitor.
- Glare from windows can be controlled by using light blocking window coverings.
- Avoid having windows directly in front or behind you.



- Your desk should be oriented to avoid direct glare on the monitor from overhead lights.
- Changing the monitor tilt may also be helpful.
- A task light can help to illuminate papers and desktop items to improve readability.

Laptop Computer Use

Laptop computers were never designed for extended use. *Smaller key size and spacing, and the proximity of the keyboard and screen make typing more difficult. This can present a risk for postural fatigue and hand strain if used for long periods of time.*

- If your laptop is used as your main computer, best practice is to use an external monitor, external full size keyboard and an external mouse that fits your hand. This will provide proper arm and wrist positioning and avoid strain. The top of the screen should be located at eye level to avoid awkward neck posture and possible strain.
- If you carry your laptop tp different locations frequently, consider using a laptop bag with a shoulder strap to avoid excessive gripping. Best practice is to use a backpack in order to have the weight evenly distributed.

Telephone Use

- Don't over reach for the phone. Rather, place the phone within easy reach if you use it often.
- Don't cradle the phone between your head and shoulder. Cradling the phone between your neck and shoulder for any significant period of time is a risk for neck strain and injury.
- If you are on the phone more than 30% of the workday or if you frequently use the phone and computer simultaneously, a headset phone may be beneficial.
- If practical, a speakerphone is a good alterative.

Work Organization

Task Rotation

- Reduce fatigue by switching from computer work to other work tasks to vary your posture and rest tired muscles. For example, Make a few phone calls or pick up the mail to get a break from typing.
- Taking your regular allotted breaks and not working through them will also prevent fatigue.

Recovery Pause

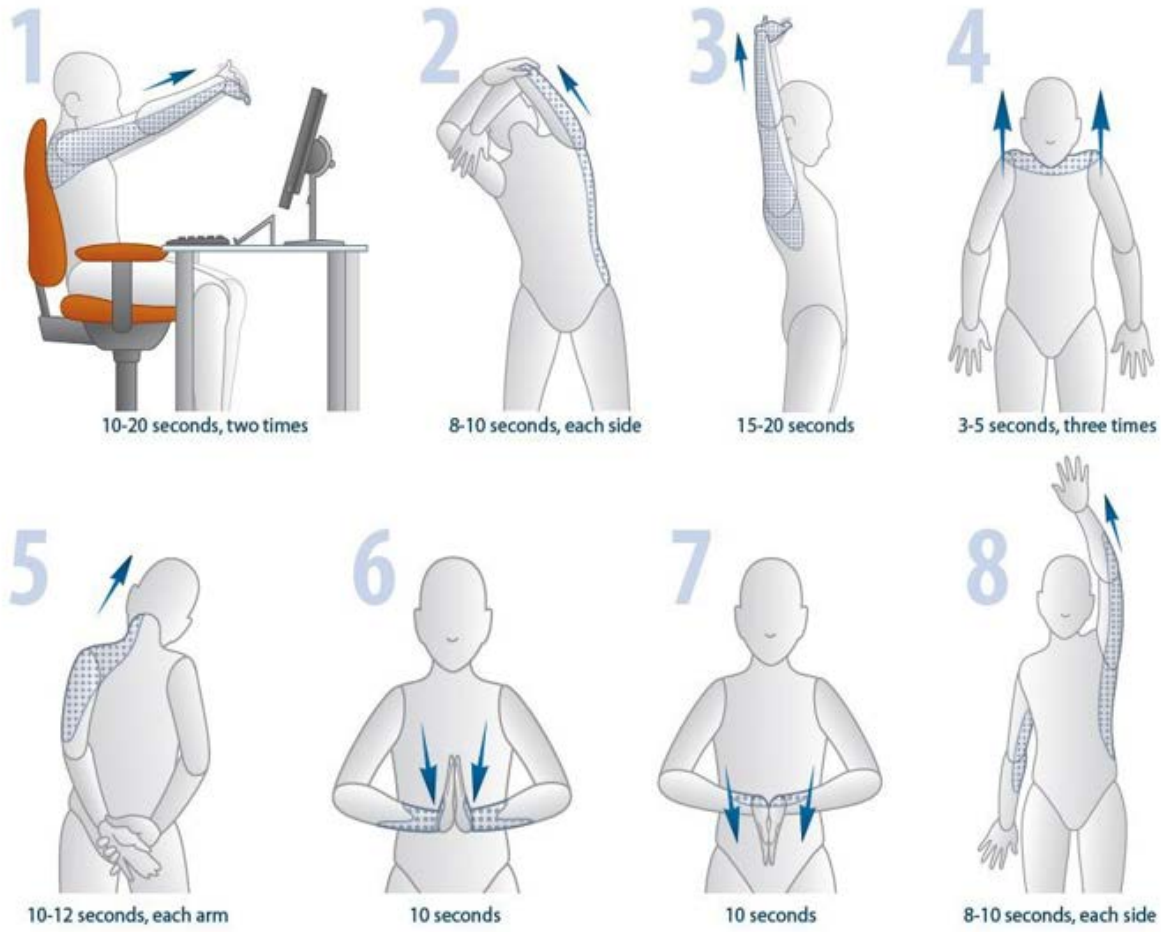
- If you work on lengthy computer tasks from start to finish without a break, you can reduce tension in your muscles by taking regular recovery pauses.
- Pauses of 20 seconds combined with office stretches will help combat muscle soreness. How often you take recovery pauses depends on the type and intensity of your work, but if you begin to experience muscle soreness, you've waited too long.
- Take recovery pauses more often as the intensity of your work and the time you spend typing increase.
- If you pace yourself with recovery pauses, you will likely feel better and still complete the same amount of work as you would without taking recovery pauses.

Reducing Mouse Use

- Using keyboard shortcuts can reduce the use of the mouse.
- Microsoft shortcuts:
- Apple shortcuts:
- Customizable function keys can help to reduce your keystrokes.

CTRL+C:	Copy	**CTRL+U:**	Underline	**SHIFT+DELETE:**	Delete Item
CTRL+X:	Cut	**CTRL+I:**	Italic	**F1:**	Help
CTRL+V:	Undo	**CTRL+ESC:**	Open Start Menu	**ALT+F4:**	Quit Program
CTRL+B:	Bold	**ALT+TAB:**	Switch between Open Programs	**Windows Logo+L:**	Lock computer
CTRL+A:	Select All				

Office Stretches



Even with the best workstation equipment and setup, working for long periods at a computer can cause fatigue and discomfort. Doing a simple set of stretches can go a long way to alleviating fatigue and reducing muscle discomfort. The below stretches can be performed every couple of hours, or when you feel it is necessary. Even getting up to walk around or standing to read or get the phone can help. If you feel any discomfort or pain while performing these stretches, stop immediately. Consult with your health care provider before starting any stretching or exercise program.

Post this page in your office as a reminder to stretch regularly.

Material Handling in the Office Environment

Material handling consists of lifting, carrying, holding, pushing or pulling objects or materials from one place to another. Items may be handled with one or both hands. Of these activities, lifting usually poses the greatest risk for injury. Whether you are at work or at home, the following lifting recommendations can reduce this risk.

Lifting Recommendations

1. **Assess the activity characteristics.** Is the item heavy? Do you know how heavy? Is the load bulky, unstable or awkward? Is there convenient handles? Is you are not sure, test the load and get help.
2. **Plan the activity.** Ensure the area is clear of obstructions for all stages of the lift, including where you will be moving the load and the path if you are carrying.
3. **Warm up** before any significant material handling. A few stretches or even a short walk after extended inactivity can protect your spine while handling loads.
4. **Keep the load as close to your body as possible.** This minimizes the forces on the spine.
5. **Maintain the neutral "S curve" spine posture.** Keep the head up and the behind out when performing the lift. This will help to properly stabilize the spine.

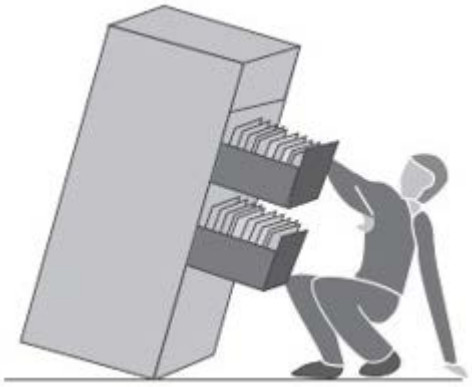
6. **Do not twist the trunk.** If you have to move the load to the side, move the feet to keep the spine from twisting.
7. **Adopt a wide base of support.** Keep the feet approximately shoulder width or slightly further apart. For additional stability, one foot can be slightly ahead of the other. This is called the diagonal lift.
8. **Lift at a moderate speed and do not jerk the load**. Avoid using excess inertia. Obtain assistance if the load is too heavy.
9. **Use mechanical aides** such as hand trucks, carts, or dollies, if available, for heavy loads. Push, rather than pull carts or trolleys.

10. **Avoid carrying bulky items** that impede your view. If possible, **balance the load** by carrying something in each hand.
11. **Maintain a good level of physical fitness.** The stronger and fitter you are, the less chance you have of sustaining injuries.

Further information on Manual Material Handling can be found at: Materials Handling Manual

Filing

File cabinets are a common feature in most offices. While useful for storing large amounts of paper, filing cabinets may be a source of workplace injury. Taking some simple safety precautions can help to prevent many of these common hazards.



- Place frequently used files in middles drawers, file stands or portable filing carts for easier access.
- Avoid overloading upper drawers to prevent tipping.
- Break large files down into smaller ones to make them easier to handle.
- Keep file drawers loosely filled so that files will be easier to remove and replace.
- Use only drawer handles to open and close.
- Alternate low filing that requires squatting or kneeling with standing to break up the task.
- Keep file drawers closed when not in use.
- Place file cabinets out of high traffic areas.
- File cabinets should be on a level surface to prevent drawers opening on their own.
- Placing file cabinets against walls will improve stability.
- File cabinets should be inspected and maintained periodically.

Storage of Materials

Avoid heavy overhead lifting.

- The amount of load that can be safely lifted overhead is significantly less than loads handled at waist or knee level.
- Use step stools, stepladders, platforms, or rolling stairs/steps (ensure wheel breaks are functioning) to bring you up to the load and reduce the height of the lift. Do not use chairs as a substitute.
- The heaviest items should be stored in the waist to knee range, lightest materials above shoulder range, and medium weight materials at floor level or from waist to shoulder level.

The design of boxes and storage containers can make a difference.

Boxes and containers should:

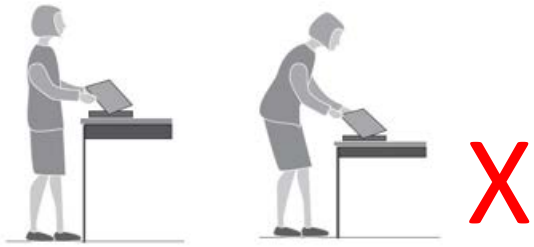
- Be as small as possible to minimize their weight when fully loaded and to allow employees to lift them close to their bodies.
- Have handles that allow employees to grip them with their whole hand rather than their fingertips. The use of handles decreases the stress on the body, improves the control and safety of the lift.
- Have cut-outs in the sides so that contents can be accessed without having to reach up and over the side.

Typical Weights of Items in an Office:

Computer Paper – Whole Box (8 reams):	42 lbs
Laptop Computer – In Case:	5 – 15 lbs
LCD Computer Monitor – 19”:	10 lbs
LCD Computer Monitor – 23”:	15 lbs
Computer CPU Tower – Small:	12 lbs
Computer CPU Tower – Large:	25 lbs

Standing Tasks

Standing tasks can be useful to break up long periods of sitting. Workstation height will depend on what kinds of tasks are being performed, but waist height is optimal for most office tasks. If a standing workstation involves computer use, then adjustable systems for monitor and keyboard height will help provide optimal neck and arm posture.



- Avoid prolonged stooping.
- Consider risers to raise work surfaces to the correct height.
- Adjustable height work surfaces will accommodate a wide variation in worker heights.
- If standing tasks are prolonged an anti-fatigue mat can help to improve leg comfort.
- A small footrest, 4-6 inches high, can relieve pressure on the low back if standing is prolonged.