Ergonomics: How to set-up your office equipment

BAYLOR UNIVERSITY

DEPARTMENT OF ENVIRONMENTAL HEALTH & SAFETY

KEN O'CONNOR

KENNETH_OCONNOR@BAYLOR.EDU

What is office ergonomics?

- Ergonomics addresses the fit between the person, the task, and the environment to help prevent injury, optimize productivity, and promote safety and health. It is NOT about:
  - The latest and greatest gadgets
  - Stretching, calisthenics or massages
  - Gimmicks and fads
- IT IS about properly setting up your computer area to reduce the risk of a Musculoskeletal Disorder (MSD) at work and at home.
- **KEY POINT:** In ergonomics, small changes can make a big impact due to the long term cumulative effect of working in an office over the course of a career. Therefore, pay attention to the details.

The goal of this presentation

- It is my desire to give you enough information so that you will be able to properly set-up and adjust your office equipment in a manner that will reduce risk factors associated with Musculoskeletal Disorders (MSD's). Those risk factors can be categorized as:
  - Awkward reaches
  - Bad angles
  - Pressure points (stress points)
- I will also briefly address:
  - Ergonomic keyboards, ergonomic mouse and other helpful accessories
  - General work area
    - Organization of work
    - Under the desk, clutter
- This presentation will NOT address sit-stand desks. Sit-stand desks will be covered in a separate presentation posted to the Baylor University EH&S website.

Where to start?

- When organizing and arranging your work area, address the equipment in the following order:
  1. Keyboard
  2. Chair
  3. Monitor
  4. Mouse
  5. General work area
- The keyboard will act as the anchor. You will adjust the chair height to match the height of the keyboard then the monitor will be properly adjusted to the height of the chair.

The Keyboard

▶ The keyboard should be within easy reach so that the user's elbows are directly under the shoulders.
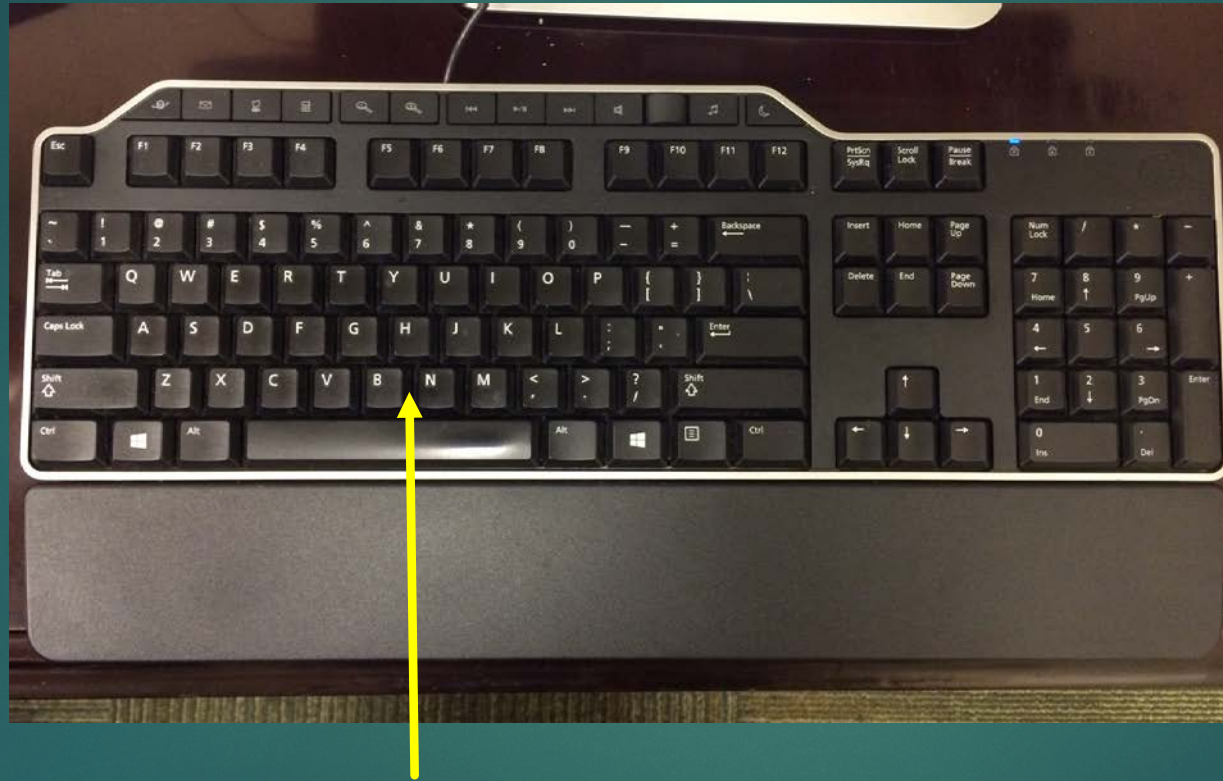
Correct
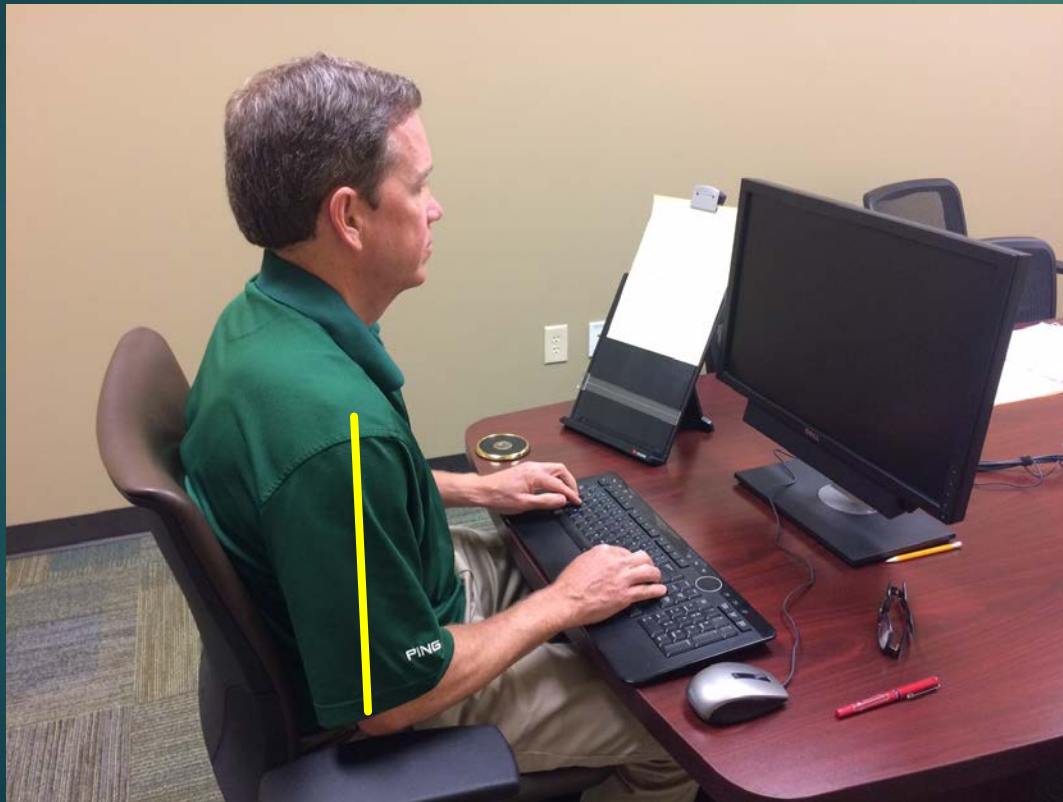
NO! Unnecessary awkward reach

The Keyboard

The "B/N" keys should line up with the users nose.

Notice that this is NOT the center
of the keyboard

The Keyboard

The keyboard should lie flat, or if a keyboard tray is available, a slight negative tilt (away from user) is preferred.
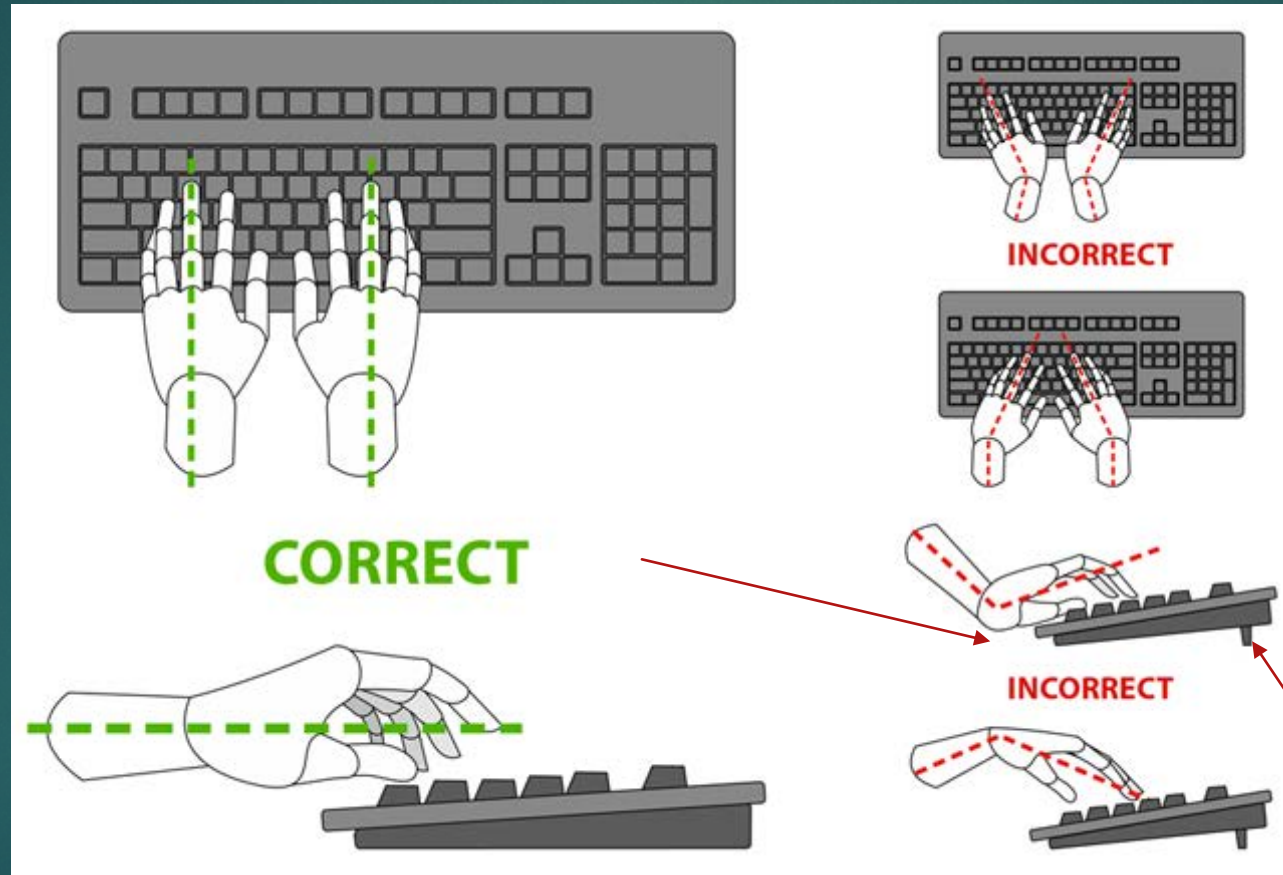
We want to eliminate any bend in the wrist. We also want to eliminate any pressure points.

NO! Do not use tabs on back of keyboard.

The Keyboard
Correct hand position

Chair

- This is the single most important piece of furniture in your office yet it is the one most commonly misadjusted.

1. <u>Start with the height</u>: With your shoulders relaxed and your arms hanging freely at your side, the height of the chair should be adjusted so that your elbow is at the same height as the space bar on your keyboard.

2. Lumbar support should be adjusted so that it fits into the natural curvature of your spine.

3. Adjust seat pan so that there is 2″-3″ of clearance between the back of the upper calf and the edge of the seat pan.

4. Adjust the height of arm rests so they are BELOW the height of the keyboard (It is not recommended that the arm rests be used while working on the computer).

Chair

Ears, shoulders, elbows, hips all vertically aligned.

Knees should be even with or slightly below the hips.

Lumbar support of backrest fits into natural curvature of back.

2"-3" inch gap here

Upper arm and forearm form 90º angle at elbow. Elbow even with the space bar.

Feet should be flat on floor.
Use a foot stool if necessary.

Chair – Arm rests

- With shoulders relaxed, the height of the armrest should be below the height of the elbow.

Arm rests too high. Shoulders raised and tense.

Armrests too wide.

Shoulders relaxed. Armrests just under elbows.

Monitor – Distance

▶ Standard recommendation is to have the monitor 18"-30" from the user.

▶ My belief is that the monitor should be close enough to the user so that the text can EASILY be read <u>WITHOUT leaning forward</u>. This is VERY IMPORTANT!

User is leaning forward in order to clearly see the screen. This will lead to a multitude of physical ailments over time.

Keep monitor close enough so that the text can easily be read while you keep your back against the backrest and your head directly above your shoulders.

Monitor - Height

Monitor height should be set so that the users eyes are even with a point 0"-2" below the top of the screen. Chin should be straight.

Monitor at correct height.

Monitor too high.
Chin pointed up.

Monitor too low.
Chin pointed down.

Monitor
2 Monitor set-up

➤ How you locate your monitors is dependent upon how you use the two monitors.

  ➤ If you use the monitors about equally, arrange the monitors as shown in the picture on the left.

  ➤ If you primarily use one monitor and the second is used to a lesser degree, arrange as shown in the picture on the right with the primary monitor directly behind the keyboard.

Primary monitor behind keyboard, secondary monitor to side

Monitors used equally
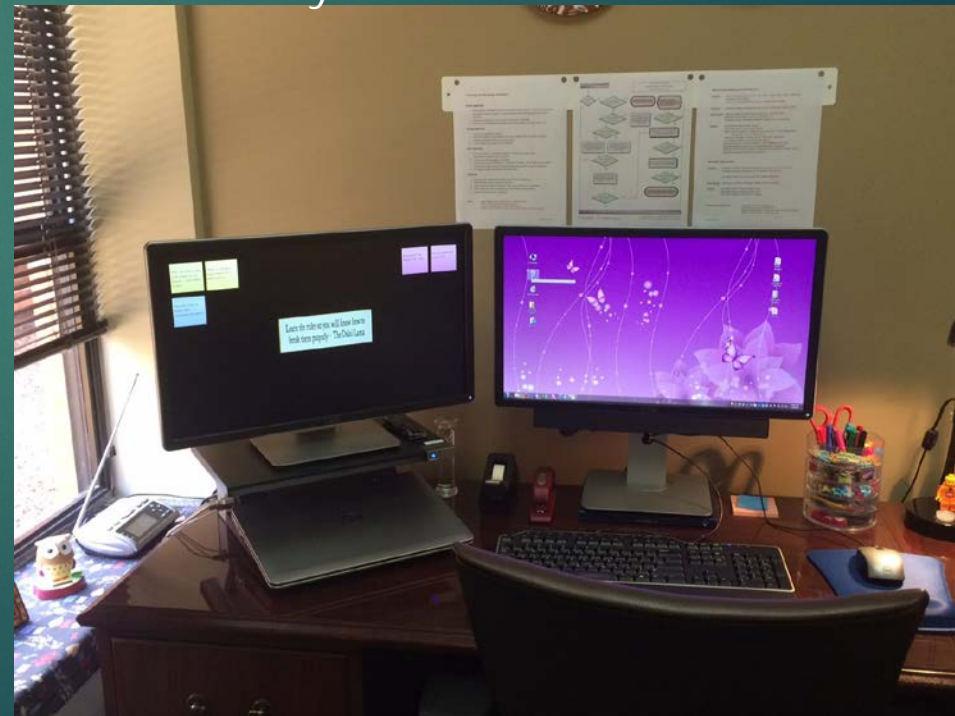
Mouse

The mouse should be located as close to keyboard as possible. Move water bottles, pads of paper, etc. if needed.

Unnecessary awkward reach   Correct!

Helpful Accessories – Ergonomic Mouse

If you are in a job that requires a significant amount of work with the mouse, you may want to consider an ergonomic (or vertical) mouse such as one of those shown below. These devices are designed to reduce the amount of stress put upon the wrist and are effective in helping to reduce wrist pain.

Evoluent

Anker

Helpful Accessories – Ergonomic Keyboard

Ergonomic keyboards are wider than standard keyboards and are sometimes split as shown below. Ergonomic keyboards may also be contoured instead of being flat like a typical keyboard. These designs allow the wrist to be in a more natural and strain free position. One of the most highly rated ergonomic keyboards is the Microsoft Natural 4000 (shown below). Also pictured are the highly rated Microsoft Sculpt and Kinesis Advantage.

Microsoft Sculpt Ergonomic Keyboard

Kinesis Advantage USB Contoured Keyboard

Microsoft Natural 4000

Work Area

- The goal is to arrange the items you need around your desk to minimize the distance you have to reach for them.

- Divide your work into three zones:

  1. **Primary Work Zone**: The distance from your hand to your elbow. Keep those items here that you touch on a daily basis.

  2. **Secondary zone**: The area within arm's reach. Use this zone to position those items you use frequently, but don't need all the time.

  3. **Reference Zone**: The area outside arm's reach. Use this zone for your least used items.

Reference Zone ➔

Secondary Zone ➔

Primary Zone ➔
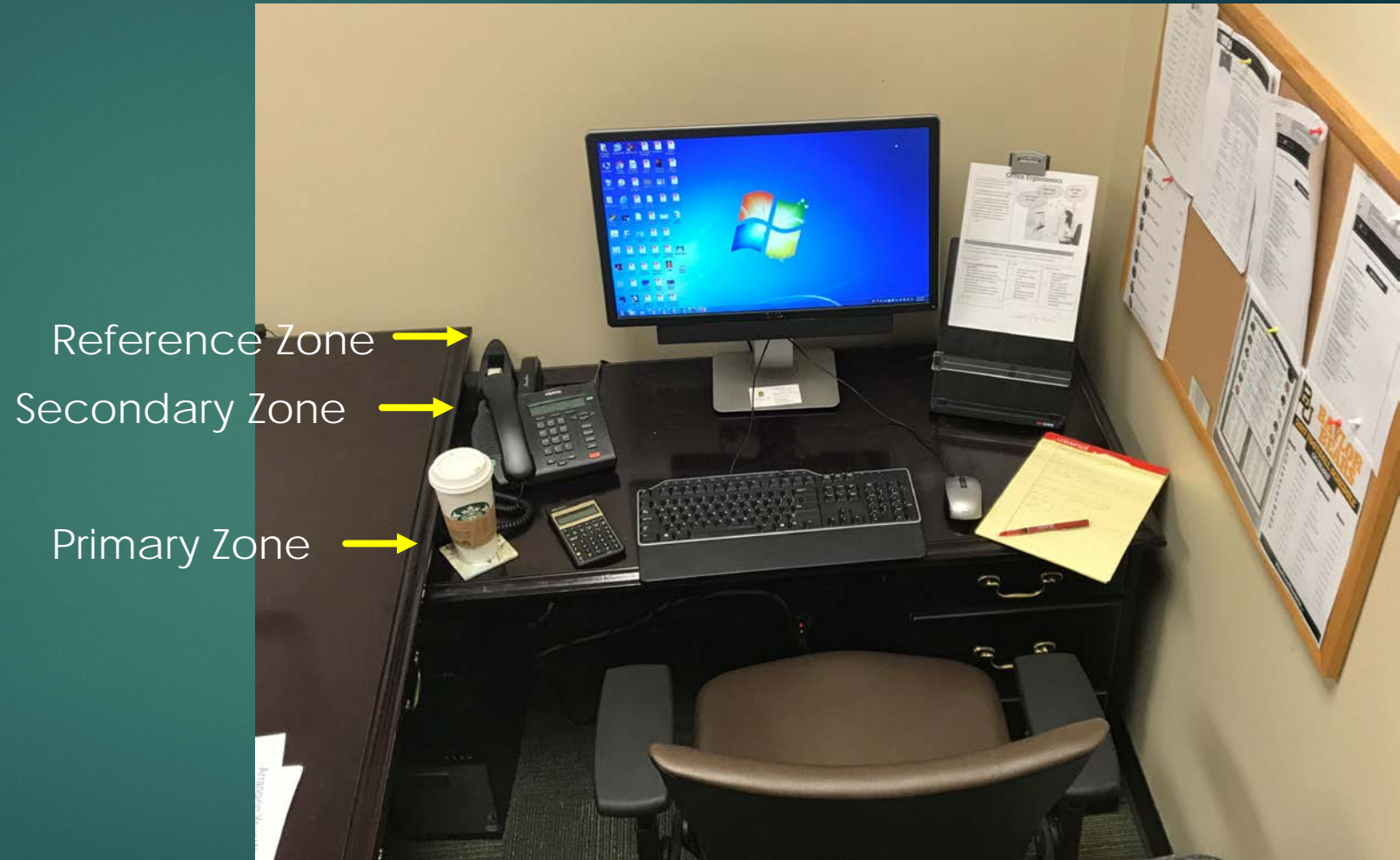
Work Area

A severely cluttered work space will prevent you from working in a ergonomically safe manner.
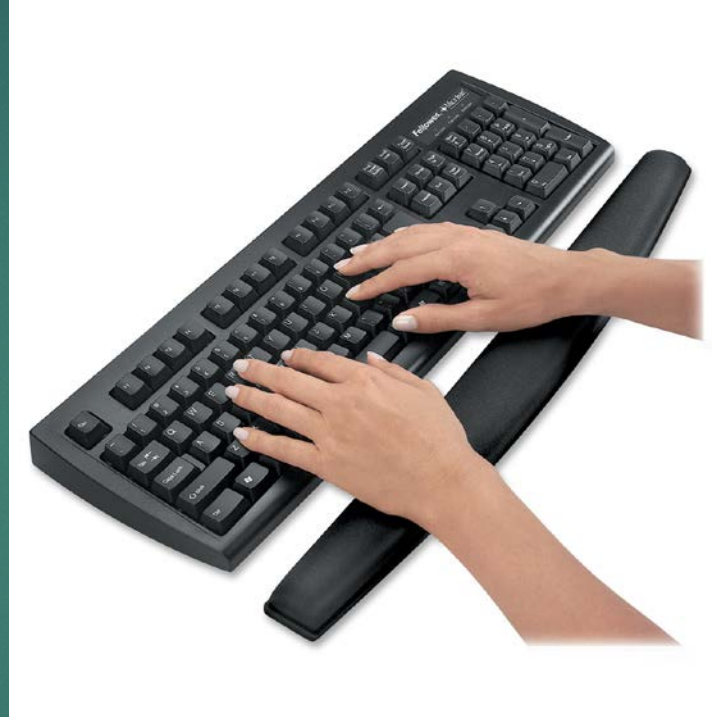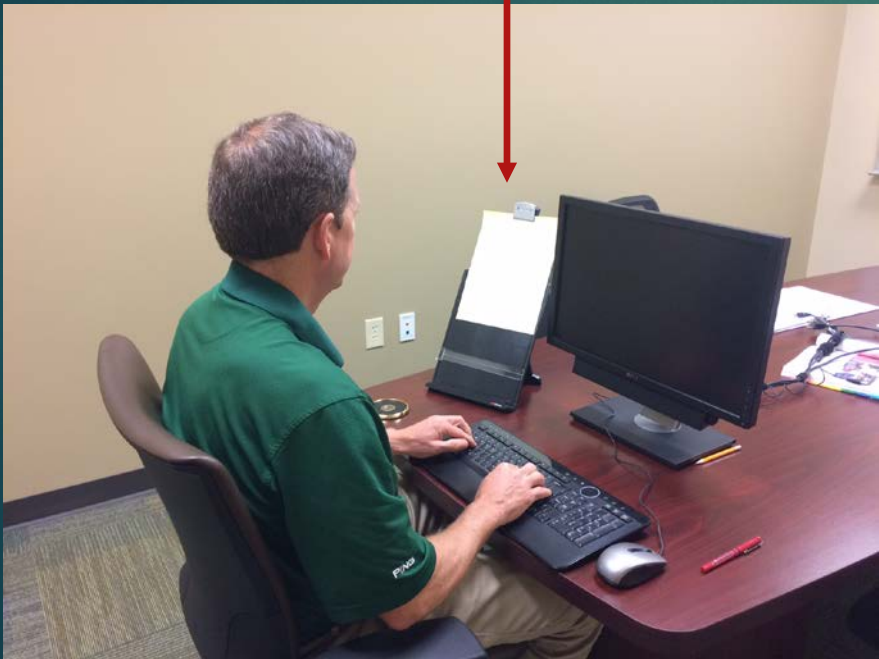
The area under your desk is for your legs, not extra storage!!

Keep your work area organized and uncluttered!!!

Other helpful items

A **document holder** is useful in reducing the amount of head turning required. Position the document holder next to and at the same height as your monitor.

A **palm/wrist pad** will provide extra comfort if you are prone to planting your wrists or palms on your desk as you type.

If you would like an ergonomic assessment of your work area contact:

▶ Ken O'Connor

  ▶ Kenneth_OConnor@baylor.edu

  ▶ 254-709-7383 (mobile)

  ▶ 254-710-2357 (office)