

OPTIMAL ERGONOMICS FOR OFFICE OR REMOTE WORK



Dianne Probert, COEA

Aspen Risk Management Group /
ERGOhealthy, A TRISTAR Company



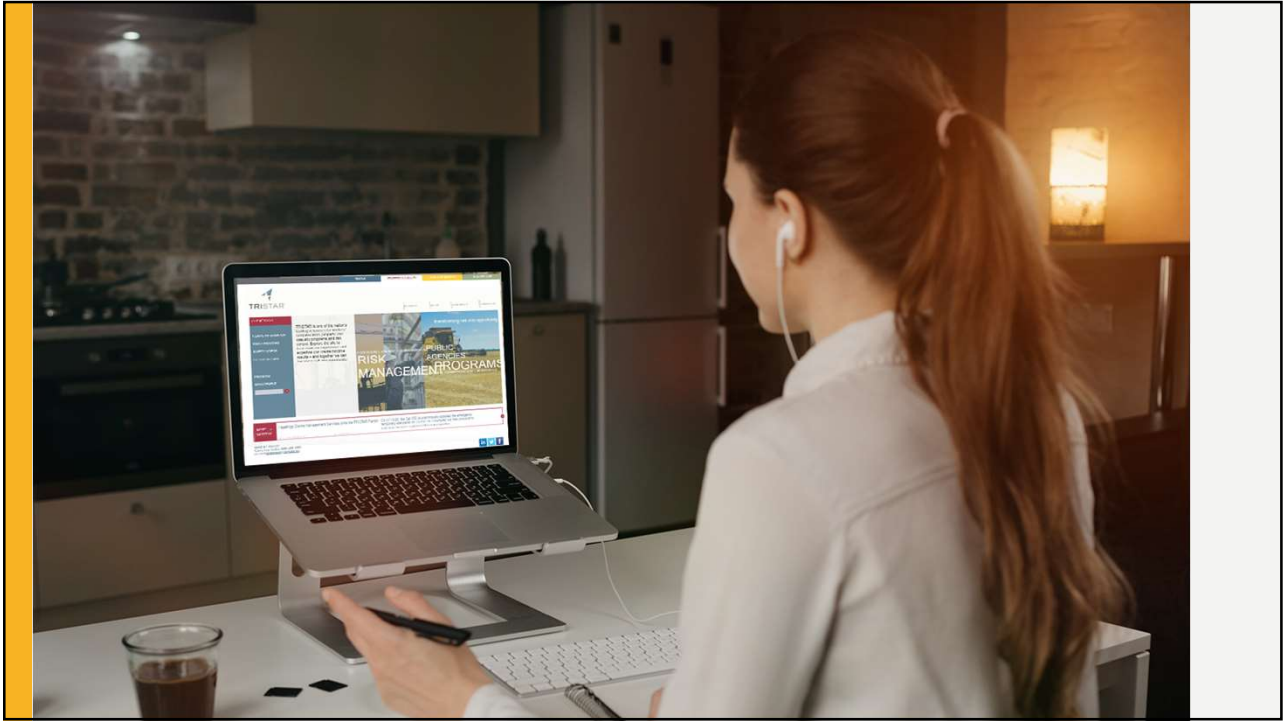
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TODAY'S AGENDA



- What is ergonomics?
- Potential ergonomic stressors
- 5-steps to setting up your workstation
- Working with laptop and desktop PCs - examples and recommendations
- Sit/Stand workstation guidelines
- Workstation assessments
- Best Practices for cell phone and tablet usage

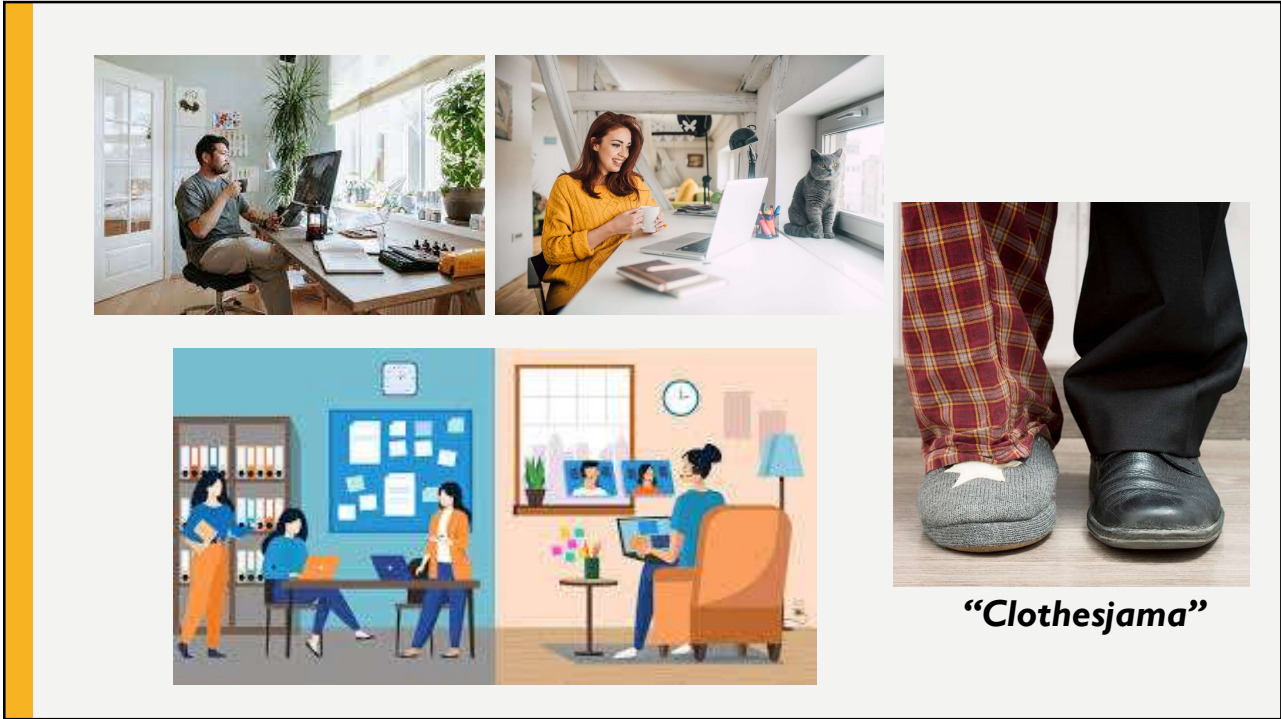
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WHAT IS ERGONOMICS?

“an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely”



“Fit the workplace environment and the work task to the person.
Do not fit the person to the workplace environment or the task.”

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WHERE TO START

Ergonomics is not a perfect science – rules are flexible

Working remotely/virtually/traditional office – the basics

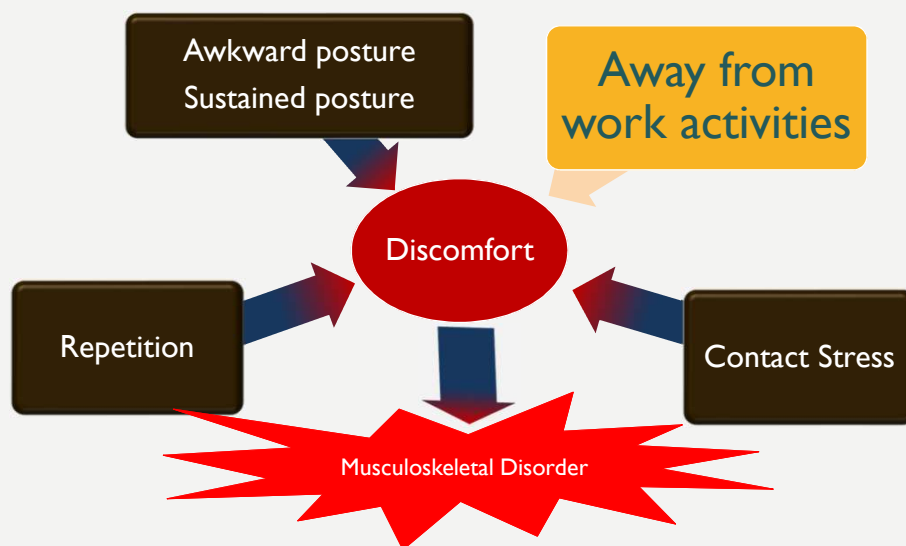
- Position of function – and comfort
- Everyone is unique - we're each made differently
- “Ergonomic” positions may not work for everyone
- Move , fidget, and re-adjust
- Posture, posture, posture
- Stay well-hydrated
- About every hour take a posture break and stand and move for a couple of minutes



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COMMON ERGONOMIC RISK FACTORS



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CONTACT STRESS

Results from occasional, repeated or continuous contact between sensitive body tissue and a hard or sharp object

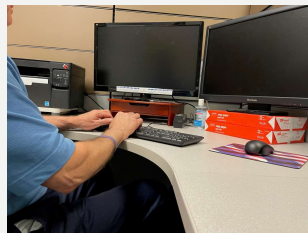


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CONTACT STRESS

Affects

- Fingers
- Palms
- Forearms
- Thighs
- Shins
- Feet



Inhibits

- Blood flow
- Tendon and muscle movement
- Nerve function



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AWKWARD/STATIC POSTURES

Awkward posture refers to positions of the body that deviate significantly from the neutral **position** while performing work activities.

When in an **awkward posture**, muscles operate less efficiently and expend more force to complete the task



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AWKWARD/STATIC POSTURES

- Joint deviated from neutral/preferred position
- More awkward = greater risk
- Short duration typically not an issue
- Repeated, long duration leads to discomfort or injury



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PRESSURE/FORCE

- Sitting while exerting force
- Excessive pressure or force can cause joints to give and tendons to tear
 - Stapling
 - Keyboard/Mouse usage
 - Opening / closing drawers
 - Writing by hand
 - IO key/ Calculator usage
 - Jewelry / wrists pressing into desktop edge



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ENVIRONMENTAL FACTORS

- Lighting
- Noise
- Vibration
- Heat
- Cold




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LAPTOPS & DESKTOPS



Used at traditional desks, sit/stand modules, kitchen tables and countertops, couches, and other locations.

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SOME THINGS NOT TO DO – BAD

... other than for a few seconds to read an email heading or look at an image

- Twisting of body
- Feet/legs not supported
- Awkward postures

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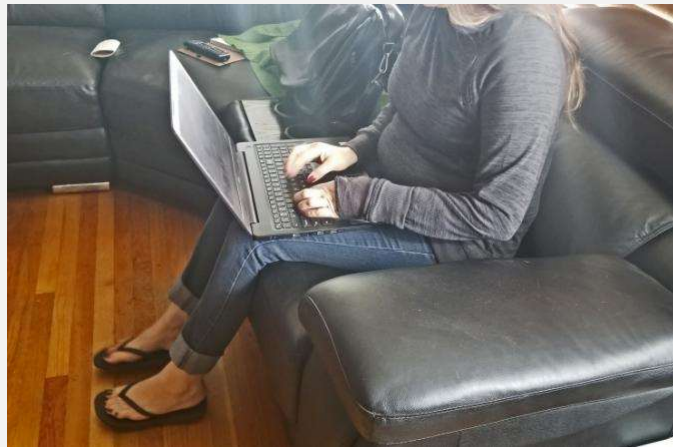
SLIGHTLY BETTER

Short-mid duration (1 to 2 hours with breaks)

- Neck posture good (check display angle)
- Shoulders back, elbows at 90-ish degrees
- Wrists straight / comfortable

Best Practices

- Base under laptop for stability and separation
- Reduce laptop heat
- Stretch break every hour
- If EMR / EMF concerns
 - Use unplugged and without WIFI & Bluetooth



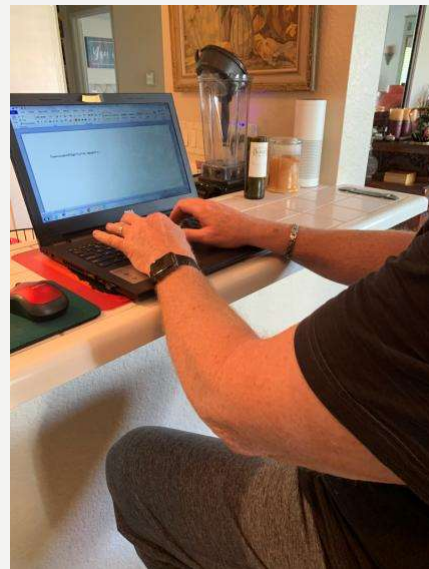
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SOME THINGS NOT TO DO – BAD

... other than for a few seconds to read an email heading or look at an image

- Shoulders pulled forward / elbow positioning
- No room for legs/knees
- Pressure on forearms
- Watch and jewelry



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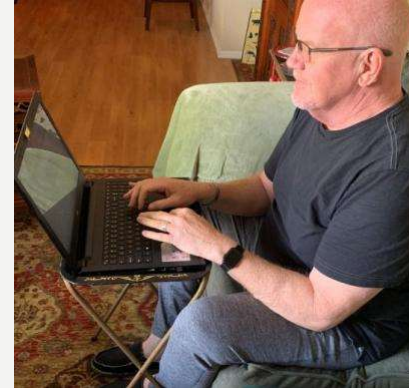
SLIGHTLY BETTER

Short-mid duration (1 to 2 hours)

- Shoulders back, elbows at 90-ish degrees
- Wrists straight / comfortable
- Minimal pressure on forearms

Best Practices

- Firmer tabletop if available
- Sit on pad or pillow for better wrist position
- Check angle of screen for neck posture
- Stretch break every hour
- Fidget



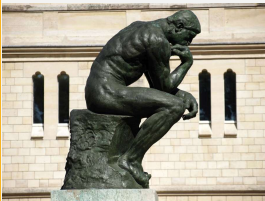
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SOME THINGS NOT TO DO – BAD

... other than for a few seconds to read an email heading or look at an image

- Hunched over
- Outstretched arms
- Neck / back posture



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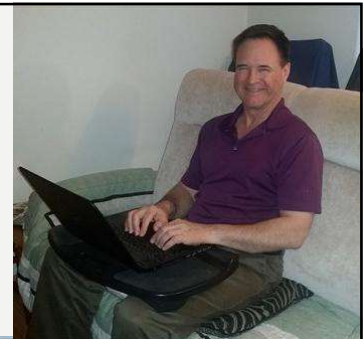
BETTER

Mid-long duration (2 to 4 hours with breaks)

- Neck posture good (check display angle)
- Shoulders back, elbows at 90-ish degrees
- Soft part of hands / palm on laptop edge
- Inexpensive laptop board / support
- Unplugged and no wifi

Best Practices

- Base under laptop for stability and separation
- Stretch break every hour
- If EMR / EMF concerns
 - Use unplugged and without WIFI & Bluetooth



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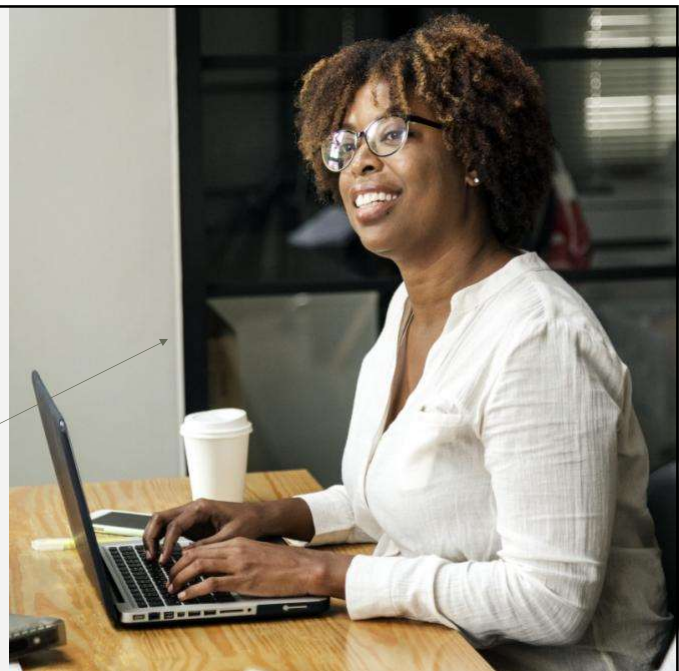
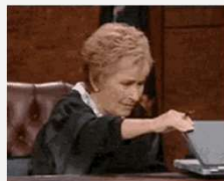
BETTER

Mid-long duration (2 to 4 hours)

- Shoulders back, elbows at 90-ish degrees
- Wrists straight / comfortable
- Minimal pressure on forearms

Best Practices

- Check angle of screen for neck posture
- Stretch break every hour
- Fidget, wriggle, and squirm



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SOME THINGS NOT TO DO – BAD

... awkward body postures

- Increased pressure on forearm / elbow
- Awkward body hip and shoulder postures
- Display panel angle



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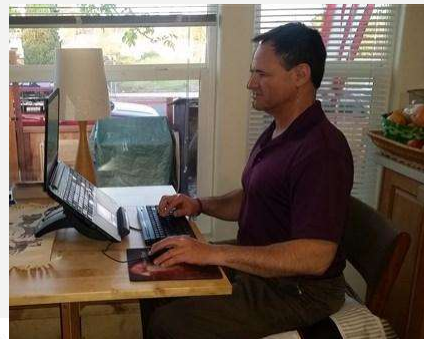
BETTER

Mid-long duration (2 to 8 hours with breaks)

- Neck posture good (check display angle)
- Shoulders back, elbows at 90-ish degrees
- Wrists elevated – no point pressure
- Inexpensive laptop riser, keyboard, mouse

Best Practices

- Alternate mouse between right and left hand
- Stretch break every hour



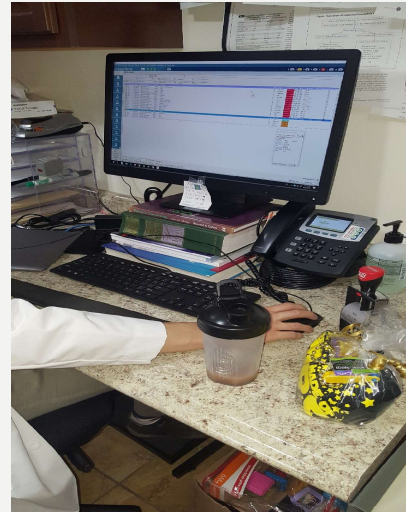
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SOME THINGS NOT TO DO – BAD

... awkward body postures

- Right arm outstretched / shoulders forward
- Keyboard and mouse too far away from desktop edge
- Chair too far out from desk



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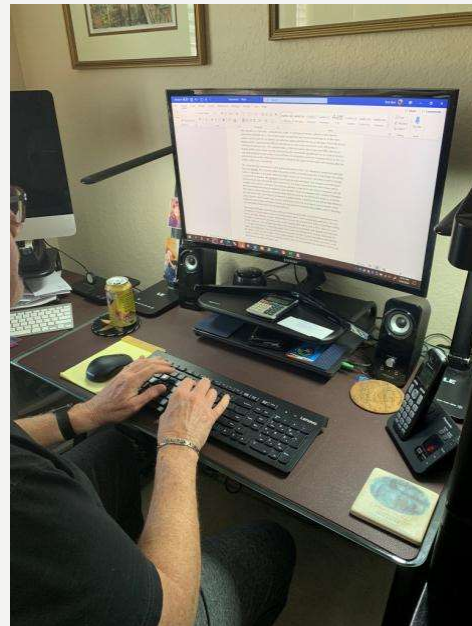
BETTER

Mid-long duration (2 to 8 hours with breaks)

- Wrist and elbow position
- Watch and jewelry – no pressure on desk
- Mouse use (left hand) . 😊
- Organized workspace

Best Practices

- Stretch break every hour
- Fidget
- Alternate mouse between right and left hand



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BETTER

Mid-long duration (2 to 8 hours)

- Wrist and elbow position
- Shoulders back
- Central monitor in front
- Laptop riser
- Feet flat on floor

Best Practices

- Stretch break every hour
- Fidget
- Alternate mouse between right and left hand



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Five steps – setting up workstation



5 STEPS

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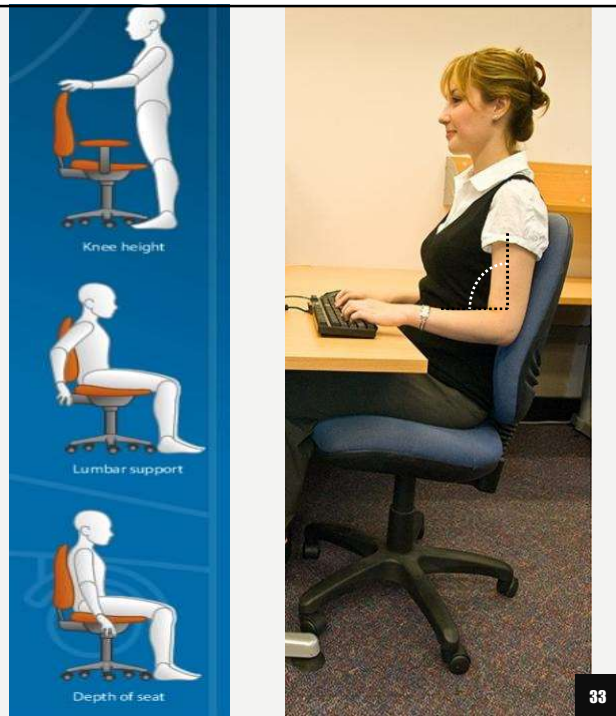
Step 1 – Start with your chair

Best Practices for choosing a chair that is right for your stature / tasks

- Knee height
- Lumbar support
- Depth of seat
- Adjustable / Removable armrests

Adjust seat height to achieve:

- Shoulders relaxed
- Elbows at about 90 degrees
- Forearms fairly level on horizontal plane
- Wrists fairly straight



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Step 2

Feet/legs supported

- Ensure hips and knees are at about 90 degrees
- Thighs somewhat parallel with floor
- Feet/legs well supported



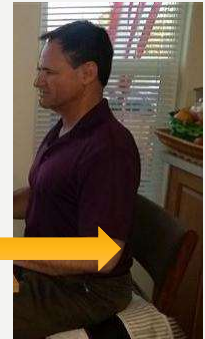
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Step 3



Adjust the seat back position

- In most cases the chair should support the spine in the upright position
- Adjust the lumbar support to fit into the small of your back
- *NOTE: Some people are comfortable sitting forward and not using the chair back for support. If posture and comfort are good, this is fine.*



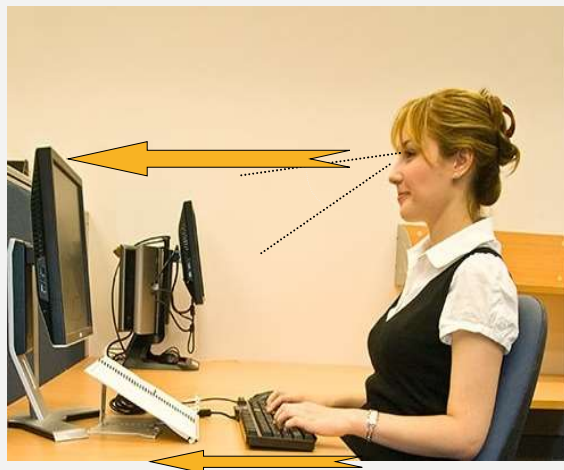
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Step 4

Monitor/screen position

- Eyes somewhat level with the TOP of the screen (depending on where work is performed)
Note: If wearing multi-focal lenses, screen might need to be slightly lower
- Distance should be comfortable for reading when sitting upright and close the desk
- Keep monitor & keyboard on-center to self (dual monitors – either centered, or most used)



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MONITORS



Single PC monitor



Dual PC monitors



Single Mac monitor



Monitor and Laptop



Laptop only

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SINGLE MONITOR POSITION



Directly front – center of monitor should be in line with your body

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DUAL MONITORS POSITION



Ideal position if monitors are used equally (about 50/50 or 60/40)



Ideal position if one monitor is primary and the other is secondary (about 70/30)



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MONITOR AND LAPTOP POSITION



The laptop (as a secondary monitor) should be raised to the approximate height of the freestanding monitor

Use an external keyboard and mouse

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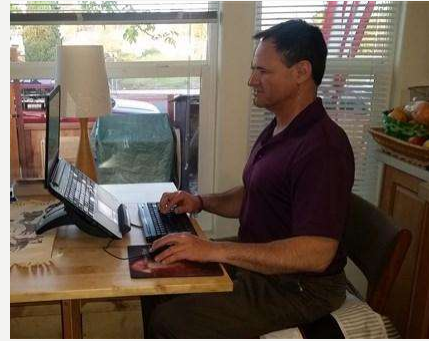
LAPTOP ONLY POSITION

To maintain eyes to monitor/screen

Raise laptop screen

For optimal body positioning

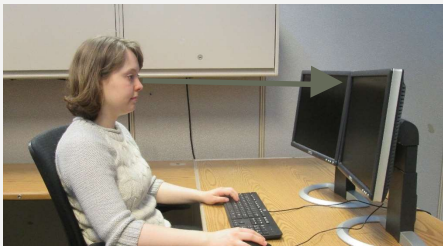
Use external keyboard and mouse



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IDEAL MONITOR HEIGHT

NON BIFOCAL USER



BIFOCAL USER



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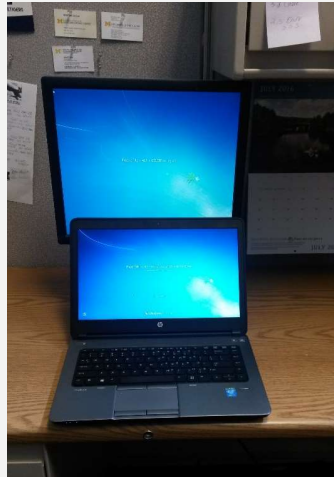
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COMMON MONITOR POSITIONING MISTAKES

AVOID PLACING MONITORS IN FRONT OF WINDOWS



AVOID PLACING LAPTOP IN FRONT OF FREESTANDING MONITOR



BIFOCAL USER



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Step 5

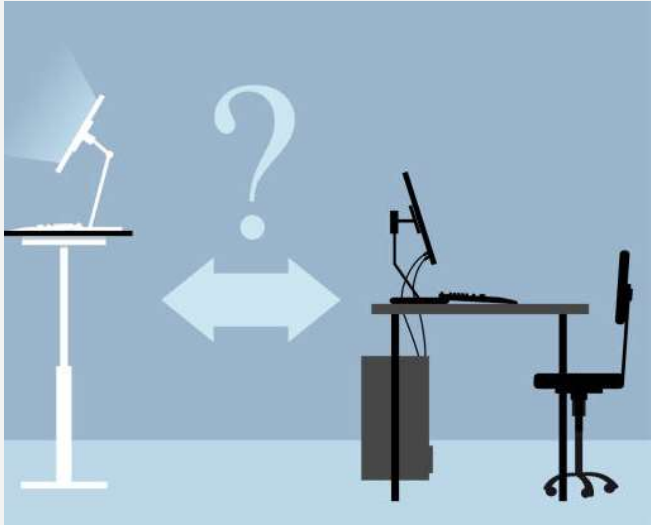
Eliminate awkward neck posture

- A document holder may be used to refer to or type from printed material
- NEVER cradle the phone between neck and ear



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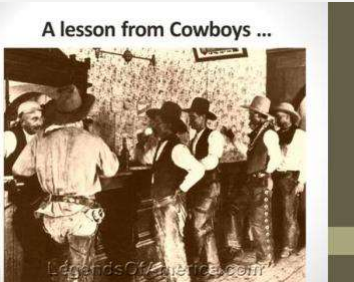
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STANDING WORK / SIT - STAND

- Same basic principles for upper body as when sitting
- Additional principles for lower body when standing
- When working at a sit-stand workstation, standing in a static posture can be more tiring than sitting in a static posture.
- Movement is important, so change positions regularly

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A lesson from Cowboys ...



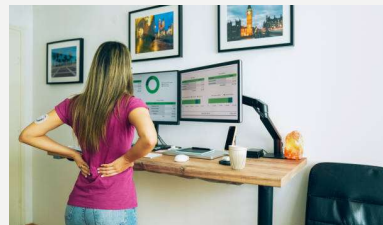
John Sloan, McSorley's Bar, 1912, oil on canvas.

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SOME THINGS NOT TO DO – BAD

... other than for a few minutes to read an email or look at an image

- Monitors too low
- Shoulders back / elbow positioning
- Uncomfortable shoes
- No foot stool to raise one foot
- No anti-fatigue mat
- Increased exposure for leg, feet, and back discomfort



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SLIGHTLY BETTER

Short-mid duration (see Cornell University guidelines)

- Use of anti-fatigue mat
- Use of step stool to elevate foot
- Relatively good desk height for arms

Best Practices

- Adjust sit/stand for optimal upper body positioning and note the setting for consistency (especially when “sharing” a workstation)
- Utilize anti-fatigue mat and foot stool
- Adjust height of monitors for neck posture
- Rotate between standing, sitting, and moving every hour



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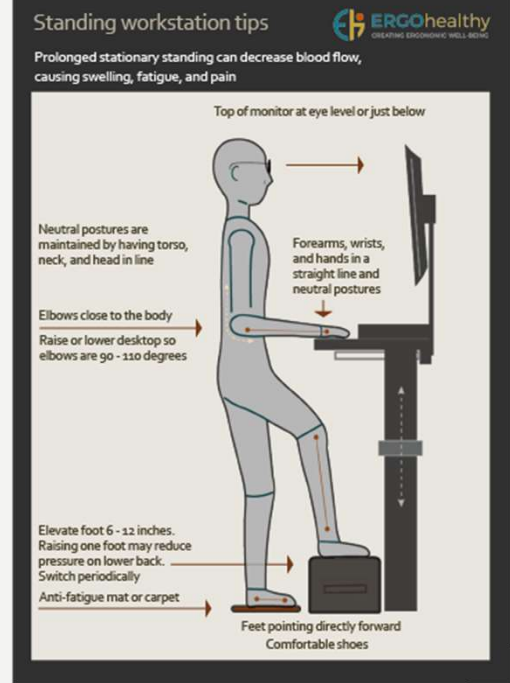
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BEST PRACTICES – STANDING / SIT-STAND

- Change positions frequently when standing for prolonged periods
- Use a footrest/stool/box (approximately six inches) to prop one foot up, and switch sides every so often
- Vary tasks to avoid static postures
- Work on a carpet pad or mat. Wear shoes in most cases
- Alternate mouse between right and left
- Limit postures that cause you to lean or hunch forward

Additional Considerations

- Prolonged standing for some may have health risks
- Can be difficult for single laptop into ergonomic position



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SIT-STAND GUIDANCE (CORNELL UNIVERSITY)

30-minute period

- 20 minutes sitting (in a good posture)
- 8 minutes standing (for sit-stand workstations)
- 2 minutes of standing and moving

For a 7.5 hours workday (lunch is excluded) this means a daily regimen with a total of 5 hours of sitting, 16 sit-to-stand changes, 2 hours of standing and .5 hours of moving.

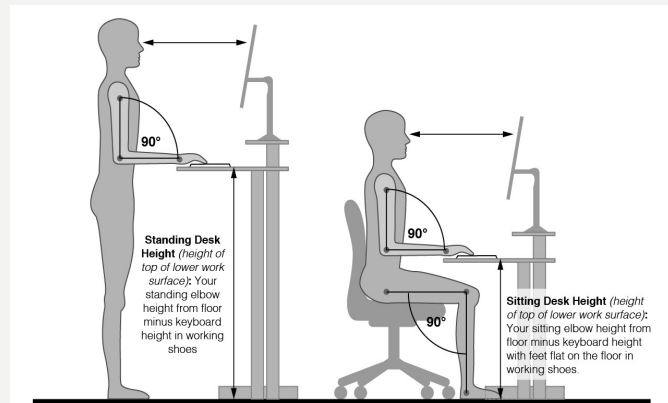


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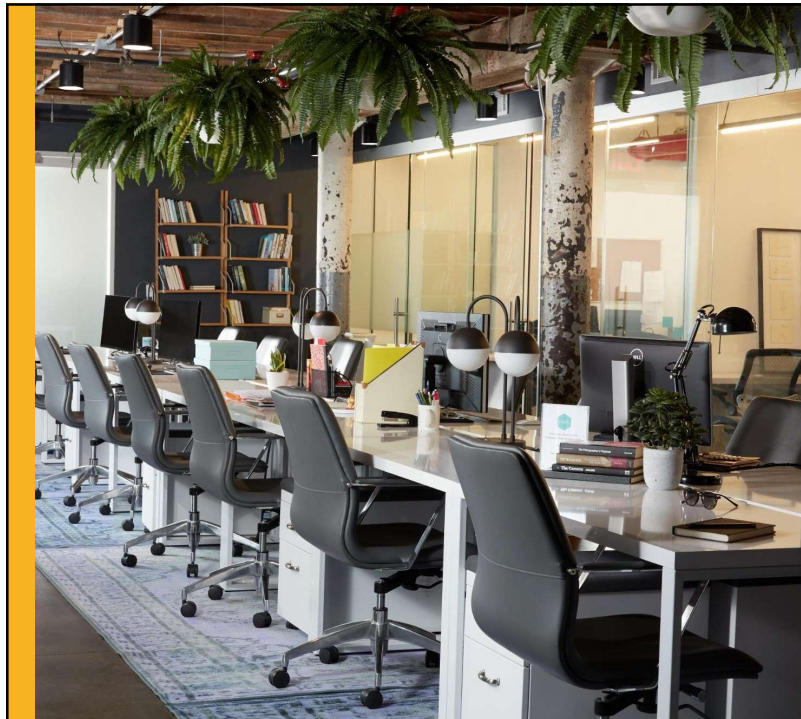
ENSURE PROPER HEIGHT SET UPS FOR STANDING AND SITTING

- Find Your Ideal Sitting/Standing Heights
- Save the Heights Presets
- Test Your Presets
- Switch using presets vs. “eyeballing”



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ERGONOMICS AND “SHARED” WORKSTATIONS

Working in a “shared” space can present unique ergonomic challenges

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“SHARED” WORKSTATION BEST PRACTICES

- Utilize equipment that best suits your stature – find a chair that “fits”
- Adjust equipment at start of shift (chair, monitors, etc.)
- Note height settings for consistency
- Utilize footrest / foot stool as needed
- Check your lighting – eliminate glare, add task lighting when necessary

Additionally

- Practice desk sharing etiquette
- Leave desk area clean and organized
- Be mindful of germ spreading
- Incorporate movement every hour



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ASSESSING YOUR WORKSTATION

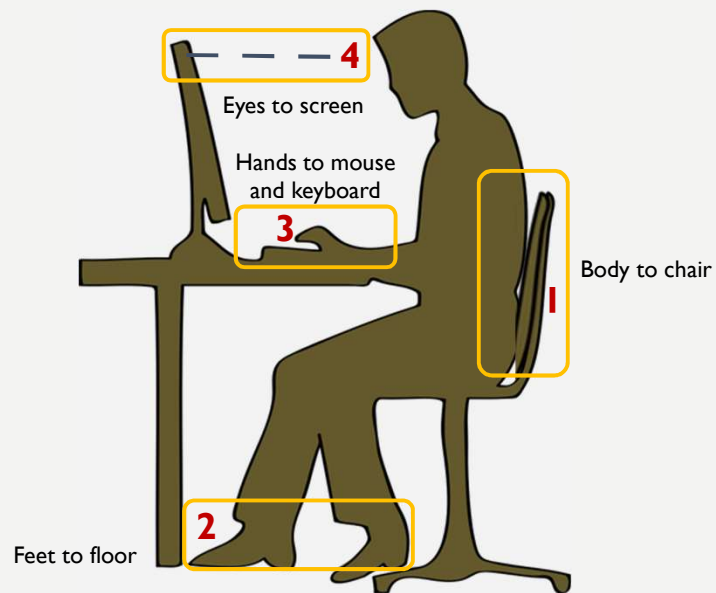
The goal of the ergonomic assessment is to make the work environment more “comfortable” for the individual

No “magic wand”

Neutral postures

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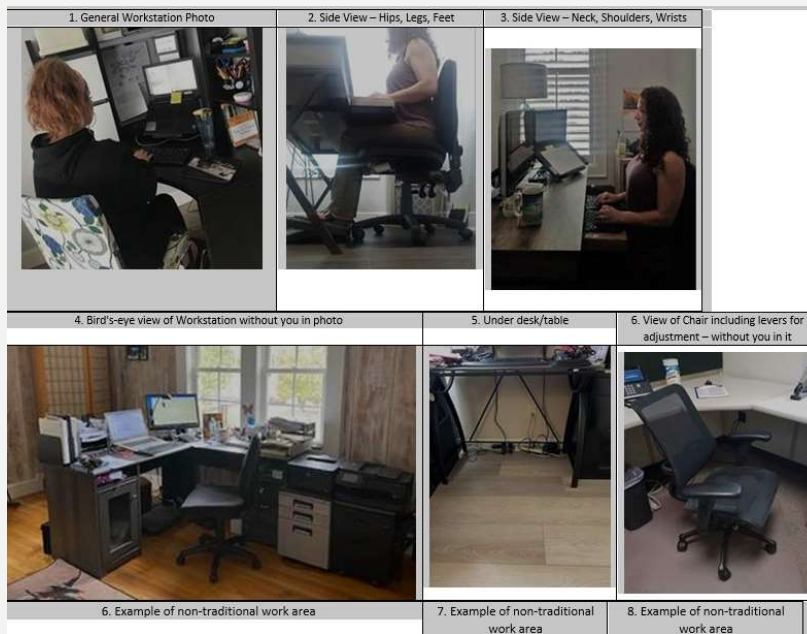
FOUR AREAS OF FOCUS



University of Michigan and Cornell University

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A PICTURE IS WORTH A 1,000 WORDS



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YOU'VE ASSESSED YOUR WORKSTATION – NOW WHAT?

Ergonomic change can be difficult – make the needed changes for optimal positioning and give yourself time to adjust

Importance of posture, movement, and away from work activities

Movement and Stretching – how often and for how long

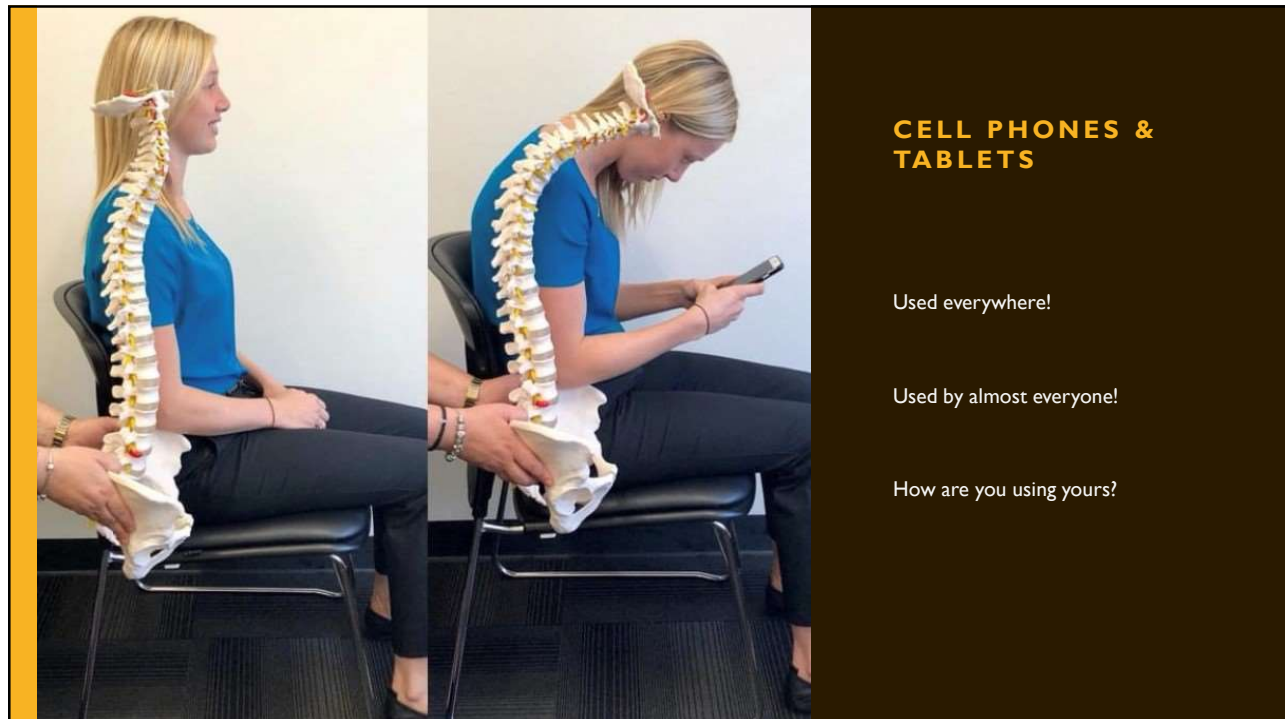
Don't forget about alternating between right and left hand

Positive attitude improves outcomes

- Frequently missed by doctors and healthcare providers

- Most people that undergo an assessment will improve, but there is some homework

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CELL PHONES & TABLETS

Used everywhere!

Used by almost everyone!

How are you using yours?

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SOME THINGS NOT TO DO

... other than for a few seconds to scan an email heading or image

- Neck flexion / posture

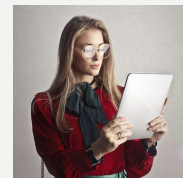
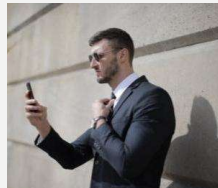


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BETTER

Short duration



- Improved neck position
- Elbows against body
- Minimal neck flexion

Best Practices

- Some shoulder stress – so temporary
- Position elbows closer to body
- Periodically outstretch arms
- “Pop socket”
- Headset
- Tabletop
- Stretch break every hour
- Fidget



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BETTER++

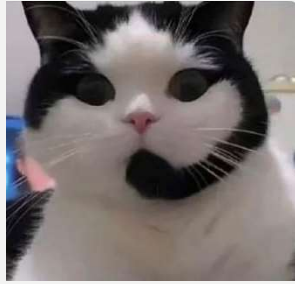
Improved positions

- Improved neck position
- Device supported



Best Practices

- Temporary positions
- Headset for calls
- Seated 😊



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POLLING
QUESTION



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HOW DO YOU COMPARE (2 YEARS OF DATA)

What neck position is most common for you using phone/tablet?

Poll Results (single answer required):



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BEST PRACTICES SMART PHONE / TABLET

- When sitting, maintain comfortable and natural posture
- When holding the tablet, keep your elbows close to your body and vary the tablet position. Limit activities that may cause neck problems – when possible, bring your phone closer to eye level
- Switch hands to keep neck postures – healthy
- Limit postures that cause you to lean or hunch forward
- Take a short (1-2 minute break) for every 15-30 minutes
- Integrate stretching of your neck muscles regularly – take a short (1-2 minute break) for every 15-30 minutes. Take regular breaks from prolonged sitting
- Don't cradle phone
- Support arm

Additional

- Lightly tap the tablet (virtual) keyboard
- If EMR / EMF concerns
 - Use unplugged and without WIFI & Bluetooth

Texting

- Speakerphone or headset
- Voice-text function for occasional breaks
- NEVER text while driving

The burden of staring at a smartphone

Effective weight on the spine as forward tilt increases

0° 12lb	15° 27lb	30° 40lb	45° 49lb	60° 60lb
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Guardian Graphic. Source: Surgical Technology International

25 pounds = an average 2-year-old | 33 pounds = a cinder block

36 pounds = a mid-size microwave | 40 pounds = a 5-gallon bottle of water

50 pounds = a small bale of hay | 55 pounds = a 5000 BTU air conditioner

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How much time do we really spend at work

24 hours/day X 7 days = 168 total hours

Average work hours = 40

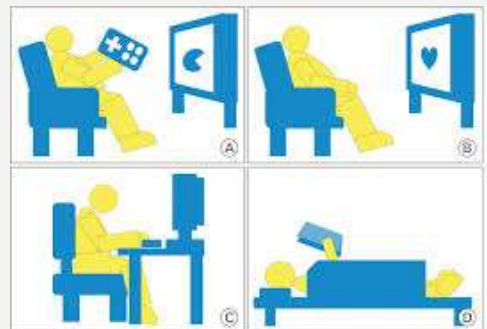
40 work hours / 168 total hours = 24%



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Ergonomics... the way it is

- Posture
- Interaction with electronic devices
- Sedentary lifestyle



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Impact of sedentary events

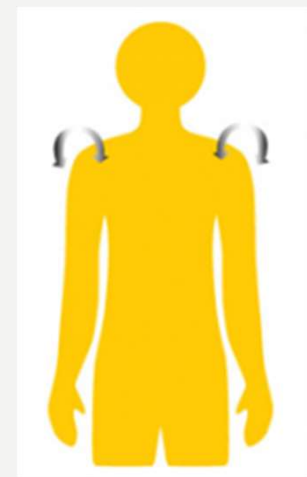
- Sedentary workforce
- Office work is frequently ignored (versus “high hazard” work)
- “Remote work”
- “Explosion” of social networking/communication
- Gaming



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BEST PRACTICES – ERGO CHAMP ©

- **E**RGO BREAK. Take a short (3–5 minute break) for every hour of sitting
- **R**EMOVE or lower armrests from chair – especially if they block arm motions or prevent from being close enough to keyboard, pad, or mouse
- **G**O gentle on yourself – ergonomics is not a perfect science
- **O**UTSIDE the box thinking – it’s ok use common sense. For example, rotate between your right and left hand for mouse use
- **C**OMFORT. Find your place of comfort. Is it sitting with back support; unsupported sitting more forward, or is it a combination of both
- **H**ANG the arms straight down at your side for 60 seconds every hour
- **A**CTIVITY. Use ergo techniques for away-from-work activities
- **M**IX it up. Your base position of comfort is your go-to place... but it’s ok to occasionally hunch, or bend, or tilt throughout the day
- **P**OSTURE. Integrate GREAT POSTURE! Head sitting upright on your shoulders, and shoulders over your hips



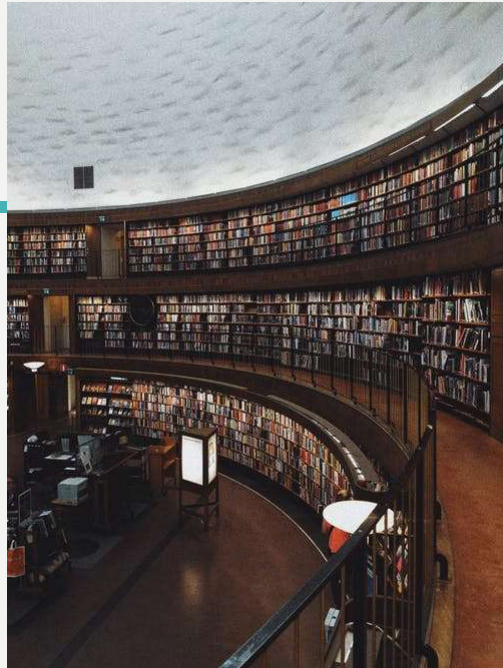
Arms hanging straight at side

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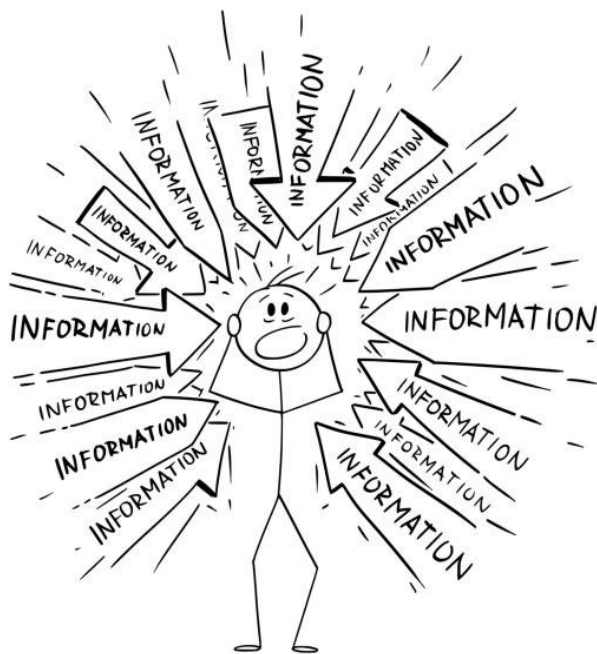
REFERENCES AND RESOURCES

- At-home safety checklist
- General Ergonomics Solutions - ERGOhealthy ©
 - Recommendations you can use in addition to today
- Stretch and Flex – Marines
- ERGOhealthy 12 Steps of Self Care by Kate Montgomery ©
- Copy of this presentation
- Break reminder apps
 - StandApp (iOS)
 - Stand Up! The Work Break Timer (iOS)
 - Move - Daily Activity to Stay Healthy (iOS)
 - Randomly RemindMe (Android)



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WE LOVE FEEDBACK

Using chat box or question box...

Tell us one thing you learned today

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A graphic for a polling question. On the left, a large white question mark is centered within a yellow circle. To the right of this circle is a dark brown vertical bar with a wavy, scalloped edge. The words "POLLING QUESTION" are written in yellow, all-caps, sans-serif font across the dark brown bar.

**POLLING
QUESTION**

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A slide with a light gray background and a yellow vertical bar on the left. It contains text and logos. At the top, "THANK YOU FOR JOINING US TODAY" is written in green. Below that, "OPTIMAL ERGONOMICS FOR OFFICE OR REMOTE WORK" is written in bold black. The Aspen Risk Management Group logo is in the center, featuring the word "ASPEN" in a serif font with a green swoosh above it, and "RISK MANAGEMENT GROUP A TRISTAR COMPANY" below. To the right of the Aspen logo is the name "Dianne Probert, COEA". At the bottom left is the ERGOhealthy logo, which includes a stylized "EH" icon and the text "ERGOhealthy" and "CREATING ERGONOMIC WELL-BEING". To the right of the ERGOhealthy logo is the text "Aspen Risk Management Group / ERGOhealthy, A TRISTAR Company".

THANK YOU FOR JOINING US TODAY

**OPTIMAL ERGONOMICS FOR OFFICE
OR REMOTE WORK**

ASPEN
RISK MANAGEMENT GROUP
A TRISTAR COMPANY

Dianne Probert, COEA

ERGOhealthy
CREATING ERGONOMIC WELL-BEING

Aspen Risk Management Group /
ERGOhealthy, A TRISTAR Company

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