



Workstation Ergonomics & Injury Prevention

MARK GUGLIOTTI

ASSOCIATE PROFESSOR, PHYSICAL THERAPY

Work-related Injury

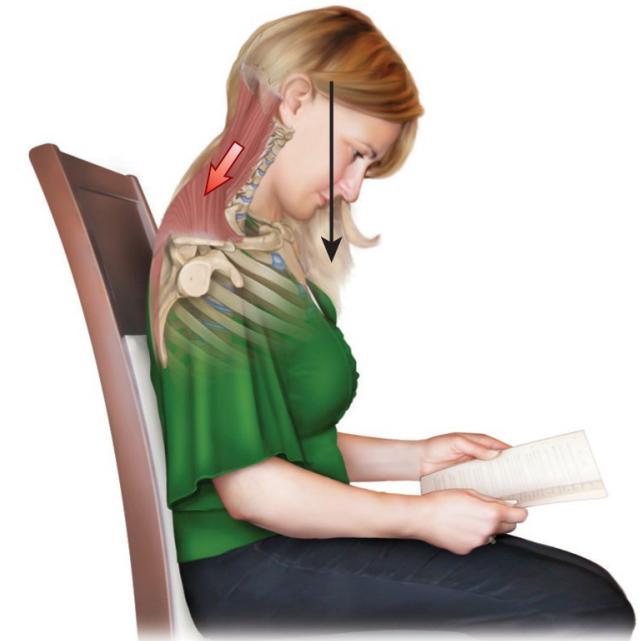
- ▶ Every 7 seconds a worker is injured on the job. (immediate/over time)
 - ▶ Neck pain and/or headache
 - ▶ Low back pain
 - ▶ Shoulder pain
 - ▶ Wrist pain
 - ▶ Nerve compression



Neck pain and Headaches



- ▶ Results of long term strain placed upon joints, ligaments, and muscles due to poor posture, stress, and working habits



Low Back Pain



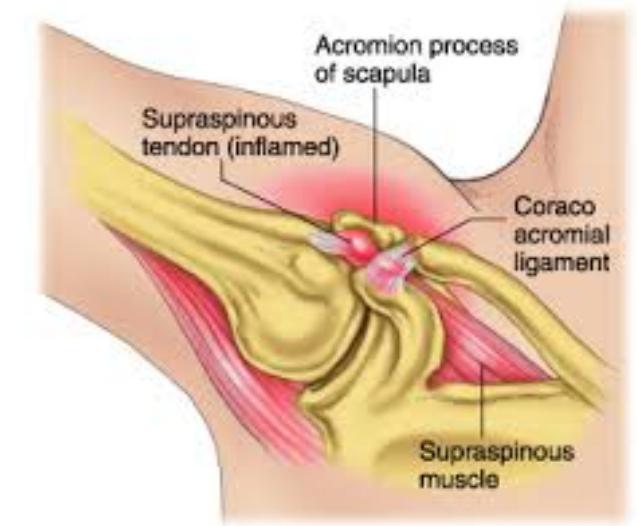
- ▶ Results of long term strain placed upon joints, ligaments, and muscles due to poor posture, stress, and working habits



Shoulder pain



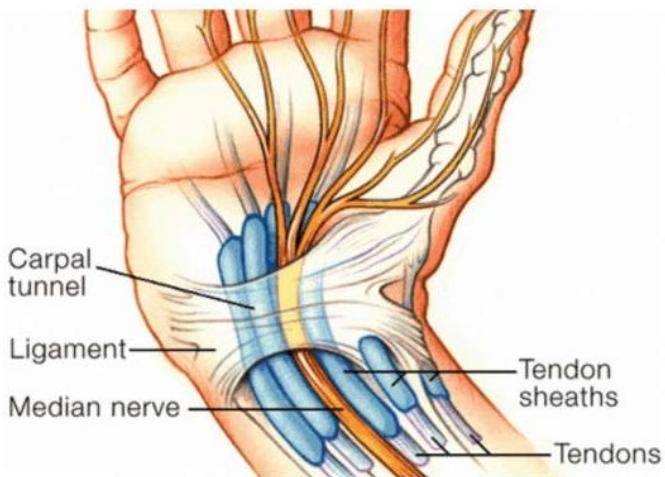
- ▶ Results from long term strain most often from improper table height and mouse use.



Wrist Pain



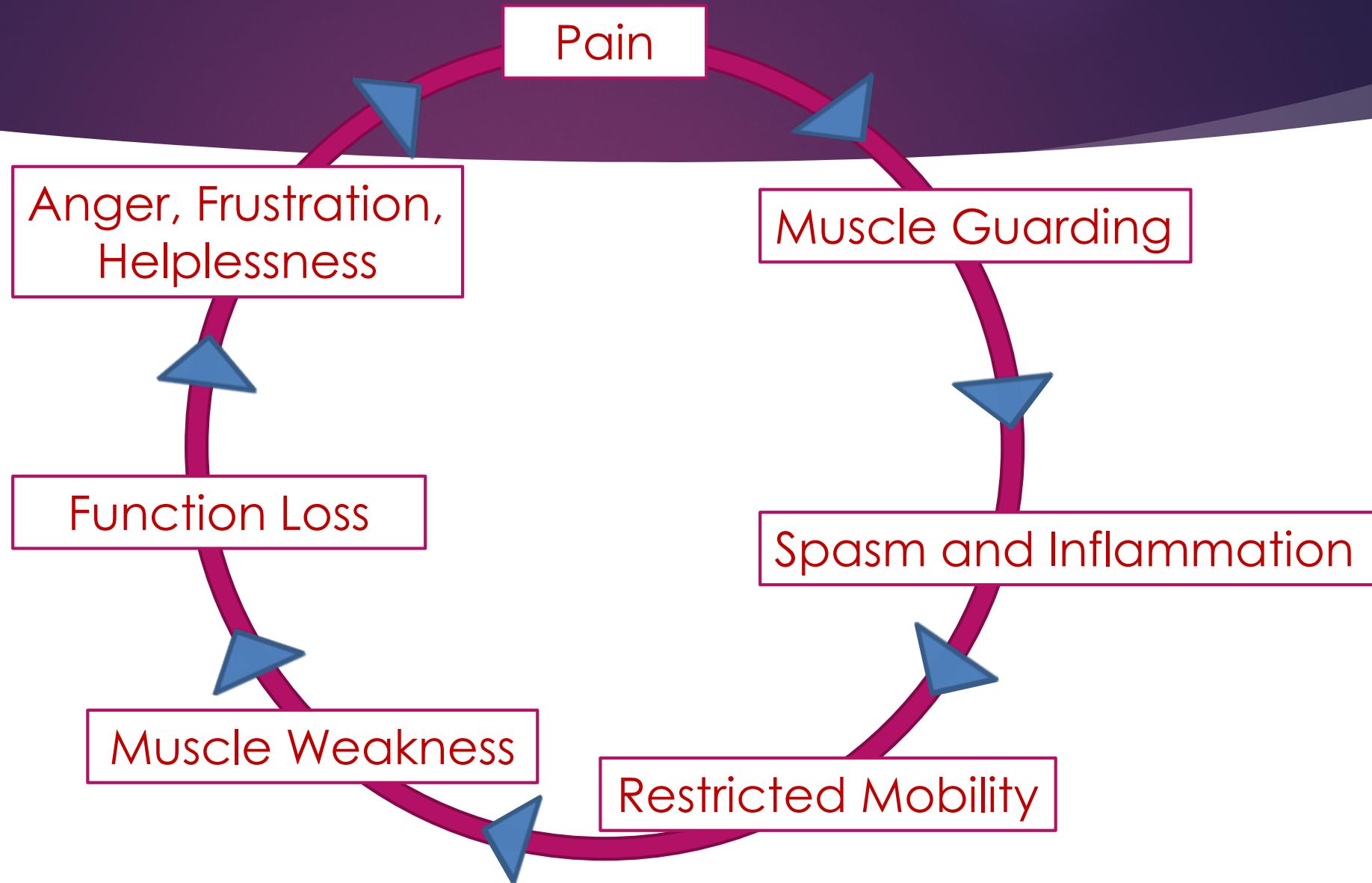
- ▶ Results from long term strain most often from improper hand use, table height, and mouse use.



Common Causes

- ▶ Poor posture
- ▶ Faulty body mechanics
- ▶ Loss of strength and flexibility
- ▶ Stressful living and work habits
- ▶ General decline of physical fitness

The Pain Cycle

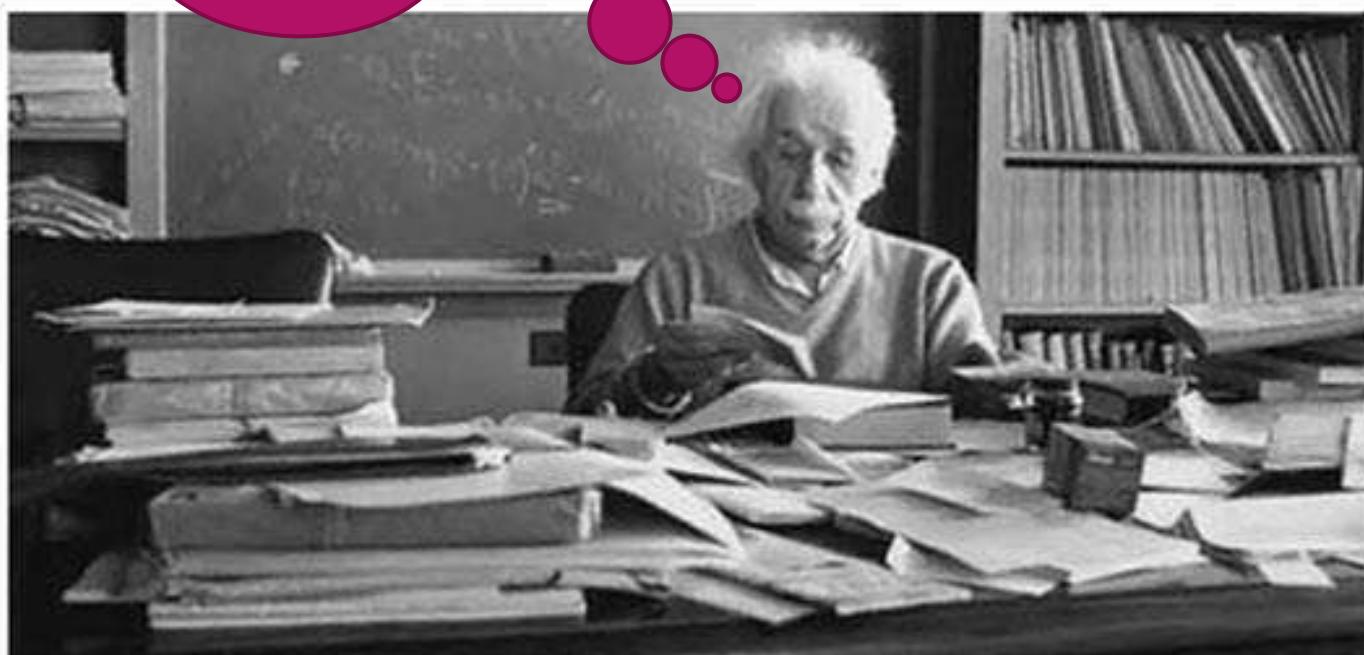


Workstation Contributing Factors

- ▶ Crowded space
- ▶ Chair type
- ▶ Desk height
- ▶ Monitor position
- ▶ Keyboard and mouse



Maybe just more
ergonomic. Hmm?



If a cluttered desk is a sign of a cluttered
mind, what then are we to think
of an empty desk?

- Albert Einstein

Ergonomics

An applied science concerned with designing and arranging things for people use so that the people and things interact most efficiently and safely.



Sit or Stand?

Sitting

- ▶ Unloads hips, knees, and feet
- ▶ Provides support to neck and back
- ▶ Provides support to arms
- ▶ Provides easy access to drawers

Standing

- ▶ May ↓ risk of weight gain/obesity
- ▶ May ↓ risk of heart disease
- ▶ May ↓ blood sugar levels
- ▶ Appears to ↓ low back pain
- ▶ May improve mood/energy levels

Sitting

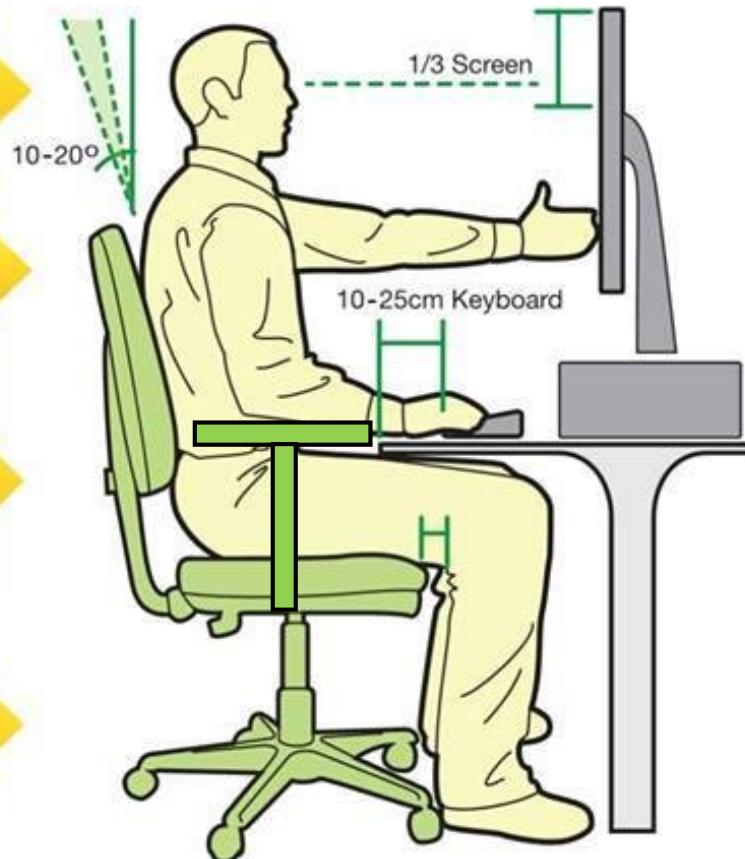
ERGONOMIC WORKSTATION SETUP

Back rest slightly reclined
to 10–20 degrees from
vertical

Chair supporting whole of
spine

Forearms approx.
horizontal with forearm
support (10-25cm for
keyboard and mouse use)

Small gap (two finger
widths) between back
of knee and front of seat
base



Top of screen at / or 1/3
above eye level

Distance to screen approx.
arm's length

Screen, document holders,
keyboard centrally aligned

Knees at approximate right
angles, thighs parallel and
feet supported (preferably
on floor)

Workplace ergonomic assessments with our Physiotherapists

<https://flexispot.com/ergonomic-calculator>

Chairs



Chairs



Chair Adjustment Knobs



Healthy Sitting

Chair Considerations

- ▶ Seat height adjustment
- ▶ Caster rollers
- ▶ Pan tilts
- ▶ Seat set back adjusts
- ▶ Lumbar support
- ▶ Seat back pivots forward and back
- ▶ Waterfall seat front

Good Sitting Practice

- ▶ Use sitting bones
- ▶ Use least amount of energy (balanced) and supported
- ▶ Need to use proper workplace layout
- ▶ Change position often every 20 min. quick stretch

Posture Do's & Don'ts: Sitting

Sitting Do's

- ▶ Sit close to your work
- ▶ Have a chair that supports your back
- ▶ Do maintain your low back arch
- ▶ Maintain proper posture while at your workstation
- ▶ Do sit in a chair that you can rest your feet on the ground or use foot rest

Sitting don'ts

- ▶ Don't slump sit
- ▶ Don't reach forward for your work
- ▶ Don't sit for long periods of time
- ▶ Don't stay seated if you're in pain
- ▶ Don't forget to adjust your seat for you!

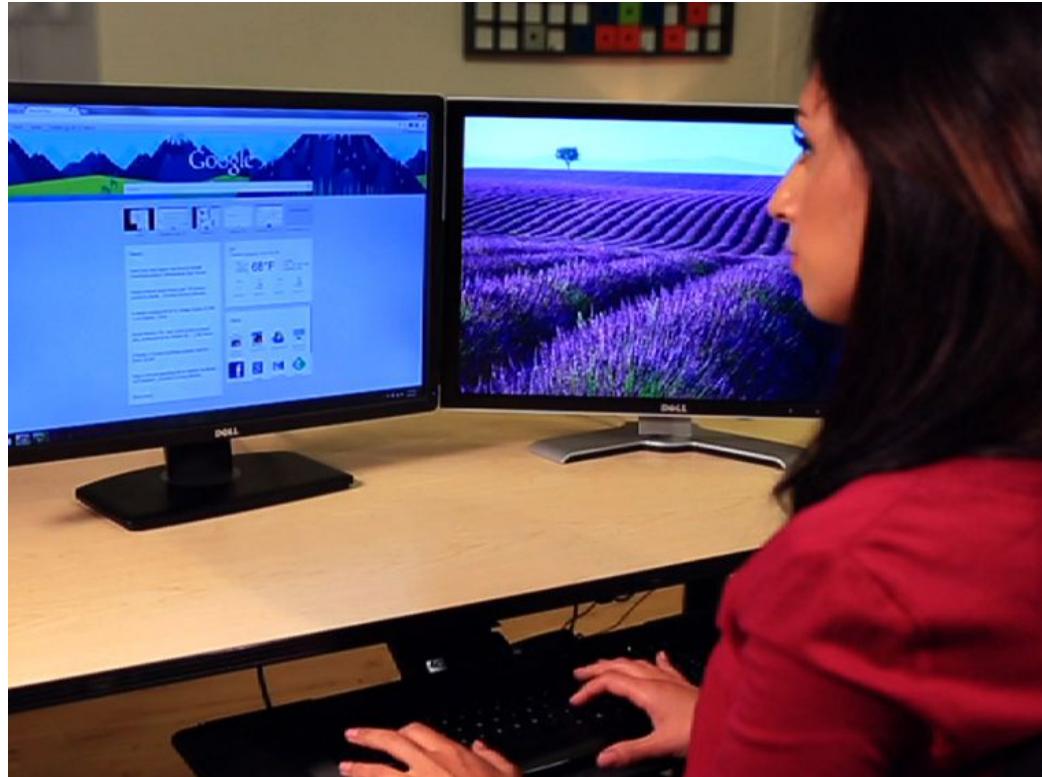
Monitors

- ▶ Placement that eliminates glare
- ▶ Minimize direct light around screen
- ▶ Place directly in front of you
- ▶ Top line of screen at or slightly below eye level
- ▶ Monitor at least arm length away
- ▶ Ability to read the screen without bending head, neck, or trunk



Monitors-Dual Screens

- ▶ Place in a semi-circle around you
- ▶ Keep screens close together
- ▶ Sit more in line with your primary



Foot Rests

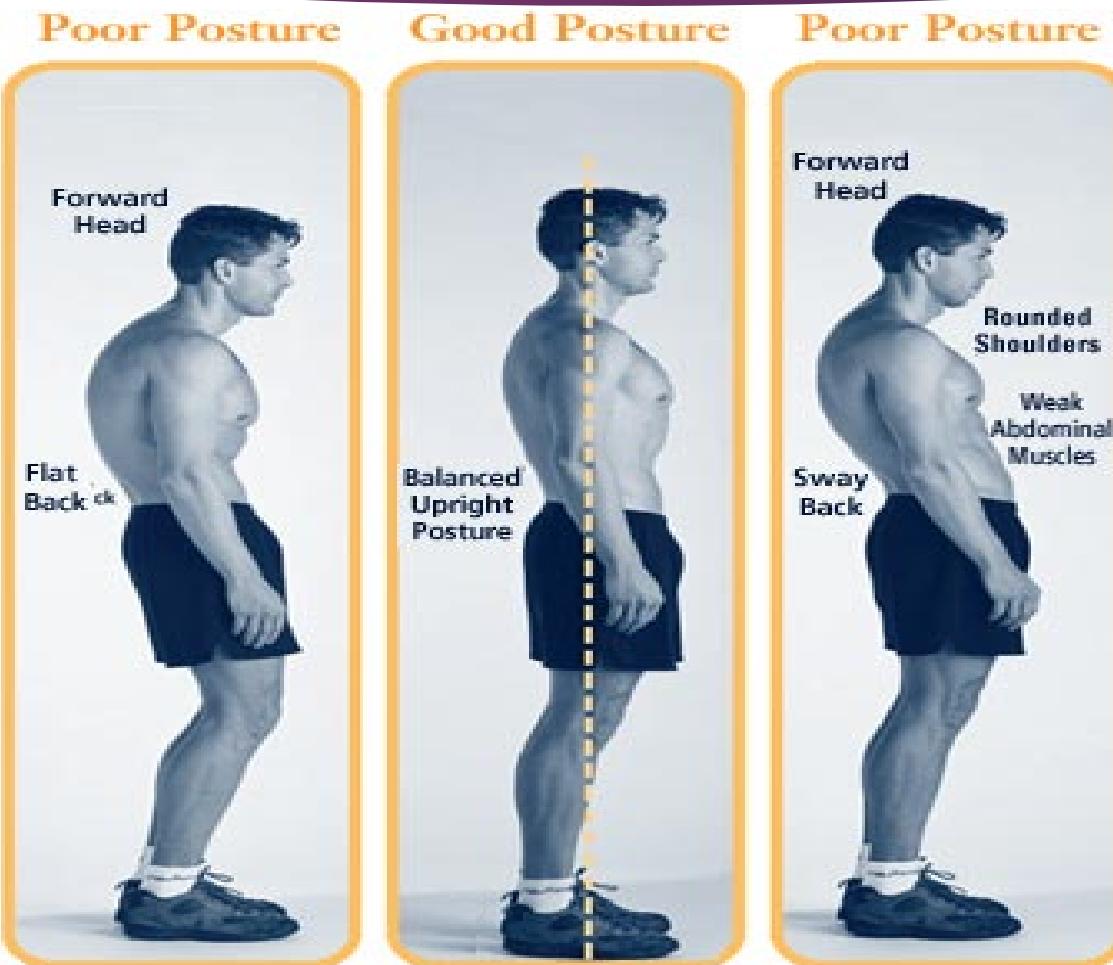




Standing



Poor vs Good Standing



Posture Do's & Don'ts: Standing

Standing Do's

- ▶ Distribute weight evenly on both feet or use a foot rest
- ▶ Stand on cushioned mat
- ▶ Keep work at a comfortable height
- ▶ Work should be close to you
- ▶ Change positions often (every 20 minutes)

Standing Don'ts

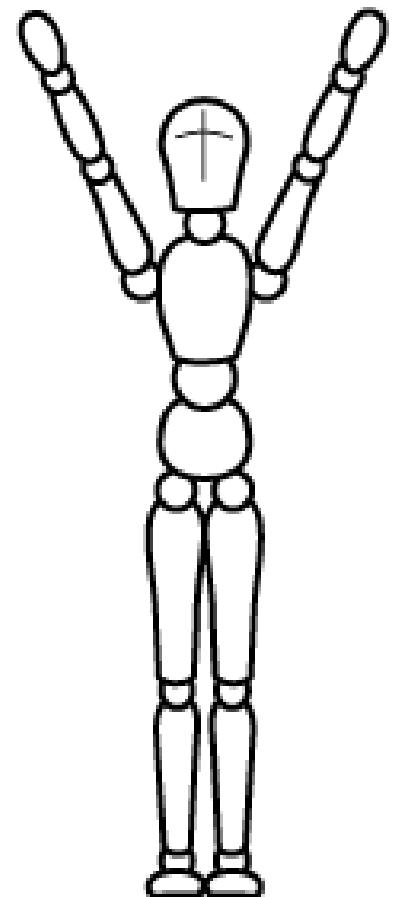
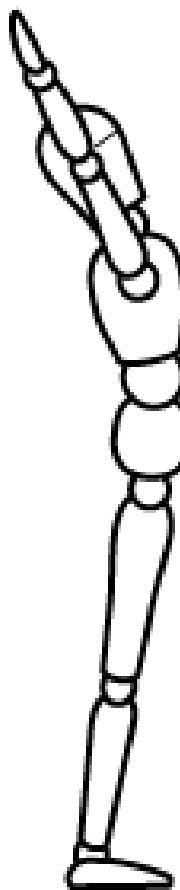
- ▶ Don't stand in same position for too long
- ▶ Don't wear high heals
- ▶ Don't stand with knees locked
- ▶ Don't stand bent forward at neck or waist

Mice



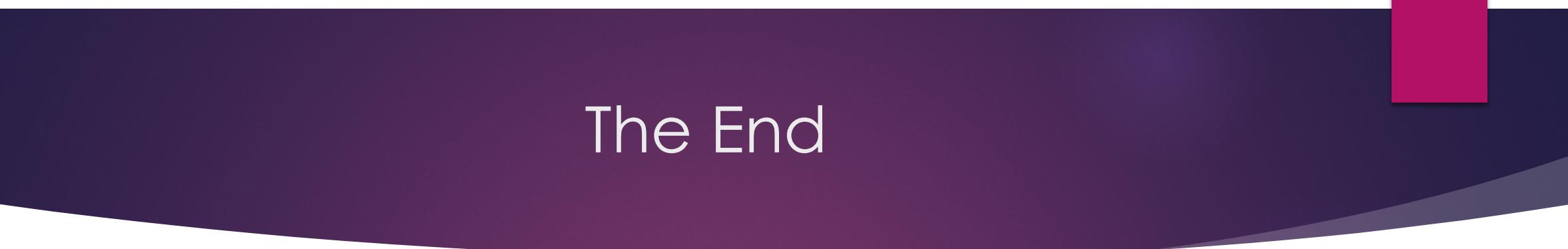
Healthy Lifestyle Tips

- ▶ Walk 25-30 minutes a day
- ▶ Stay hydrated
- ▶ Stop-Stand-Stretch (every 30-40 minutes)
- ▶ Log off and power down
- ▶ Keep a balance



Helpful Websites

- ▶ Chairs
 - ▶ <https://www.republiclab.com/ergonomic-office-chairs-guide/>
- ▶ Standing Desks
 - ▶ https://www.healthline.com/nutrition/7-benefits-of-a-standing-desk?utm_medium=email&utm_source=email-share&utm_campaign=social-sharebar-referred-tablet
- ▶ Foot Rests
 - ▶ <https://www.bestreviews.guide/foot-rests-for-desks#.XRdTv9O6bWc.email>
- ▶ Mice
 - ▶ <https://www.techradar.com/news/computing-components/peripherals/what-mouse-10-best-mice-compared-1027809>
- ▶ Ergonomic-calculator
 - ▶ <https://flexispot.com/ergonomic-calculator>



The End



THANKS