

Office Ergonomics

Mary Maynard, ACT, Ergonomic Specialist

Kirstin Lane, PT, DPT, Regional Manager of WorkStrategies

Select Physical Therapy

WORKSTRATEGIES[®]

Keeping America on the Job!

POWERED BY THE
SELECT MEDICAL OUTPATIENT FAMILY OF BRANDS



Objectives

- Review the basics of ergonomic principles.
- Review the causes of Cumulative Trauma Disorders (CTD) and how that relates to workstation design.
- Discuss how to design a workstation to fit the job and the person using it.

Ergonomics Defined



Ergonomics is the science of fitting the task to the worker to maximize productivity while reducing discomfort fatigue and injury

Ergonomics Does Not Have To Be Difficult Or Expensive



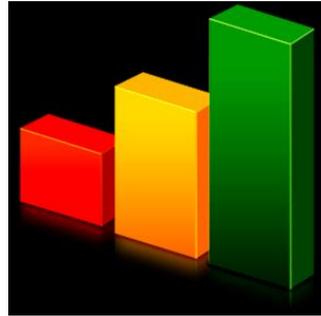
Ergonomics Benefits / Features

- Reduces lost time from work (Average Carpal Tunnel Syndrome lost work time is 30 days)
- Reduces worker's compensation costs and claims
- Reduces human errors
- Reduces absenteeism and turnover
- Demonstrates proactive compliance of Federal proposed OSHA standards
- Provides primary and preferred method of controlling Cumulative Trauma Disorders according to Federal proposed OSHA standards

Workplace Trends

- **\$225 Billion**

US annual losses attributed to lost productivity due to workplace design



- **30%-40%**

Decrease in desk size



- **64**

Average number of hours sitting per week



- **300 to 190 SQFT**

37% decrease per employee



Source: Sullivan, C. C., & Horwitz-Bennett, B. (May 2014). Workplace design trends: Make way for the millennials!

<https://www.cdc.gov/chronicdisease/resources/.../aag/pdf/.../aag-workplace-health.pdf>

Gensler, US Workplace survey, 2016

Average Desk Height?

Standard Work Surfaces

The standard desk height is between 29" & 29.5"

Correlates to 6'4" male

- 5th Percentile female - 5'0"
- Desk equivalency = 22"
- 7.5" height discrepancy!



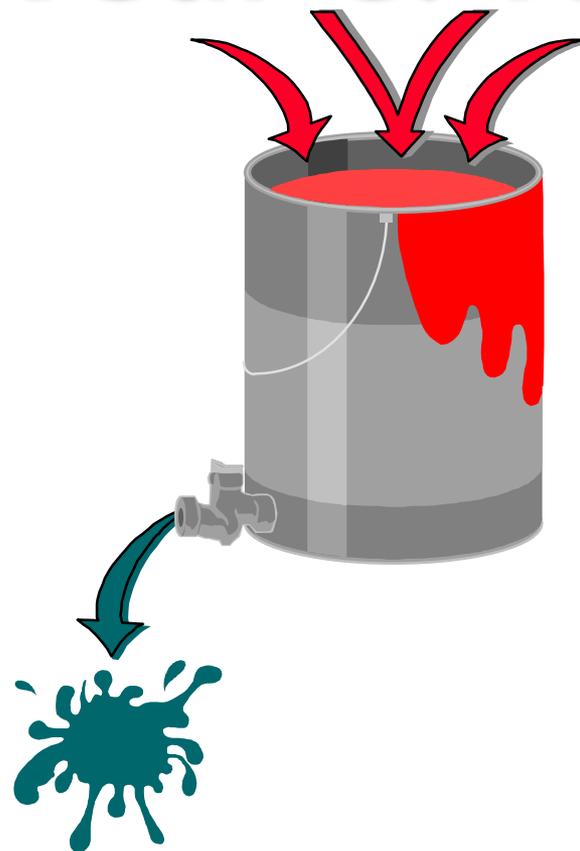
In Office Ergonomics

Awkward posture problems accounts for most of the problems

- Neck Pain (monitor position)
- Upper Back Strain (monitor, key board, arm rest position)
- Low Back Strain (seat position, foot position)

How Do Cumulative Trauma Disorders Occur?

Wear & Tear

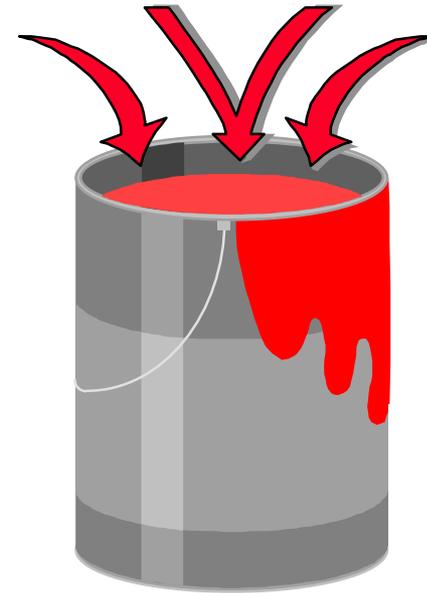


Exceeds

Healing

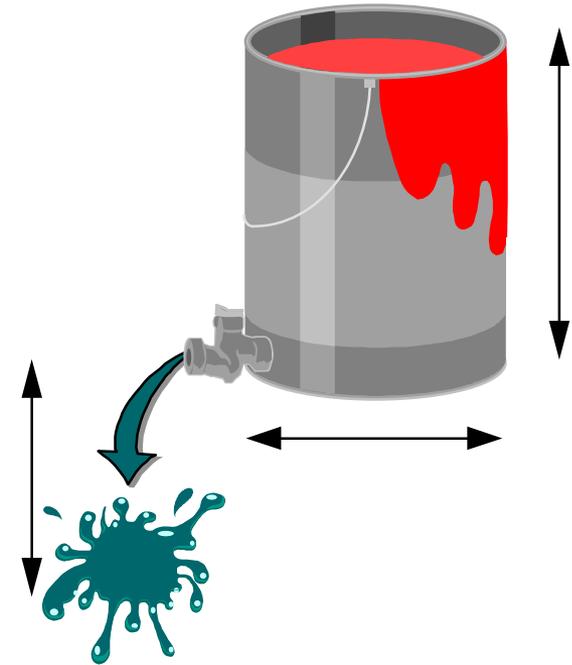
Risk Factors: External

- Repetitive Motions
- Forceful Exertions
- Awkward Postures
- Contact Stress
- Inadequate Rest
- Environmental
 - Vibration
 - Cold / Heat
 - Job stress



Personal Factors

- Age
- Gender
- Smoking
- Physical Activity
- Strength
- Anthropometry
- Others:
 - Diabetes
 - Thyroid Disease
 - Hormonal Status
 - Hobbies



Reduce the Risk Factors

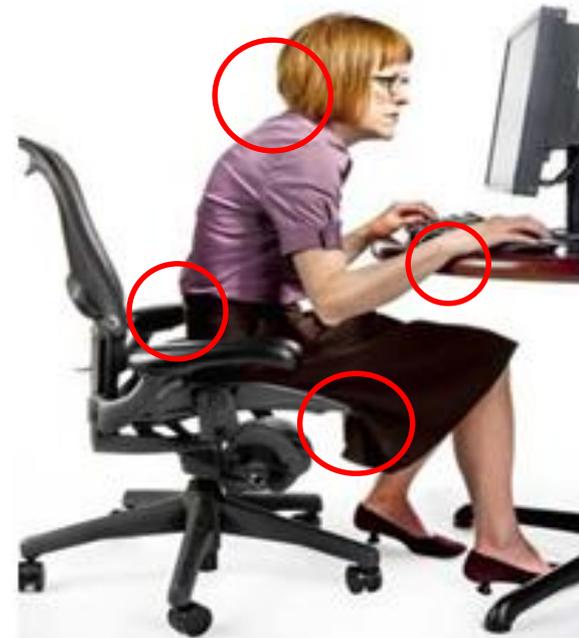


- Awkward Postures
- Repetitive Motion
- Contact Stress
- Forceful Exertions

Resolve Awkward Postures

Correct postures and sustained contractions that place strain on the musculoskeletal system.

- Neck Protraction/Extension
- Trunk Flexion
- Unsupported spine
- Contact Stress – wrist
- Contact Stress – thigh
- Shoulder shrugging
- Hip Flexion

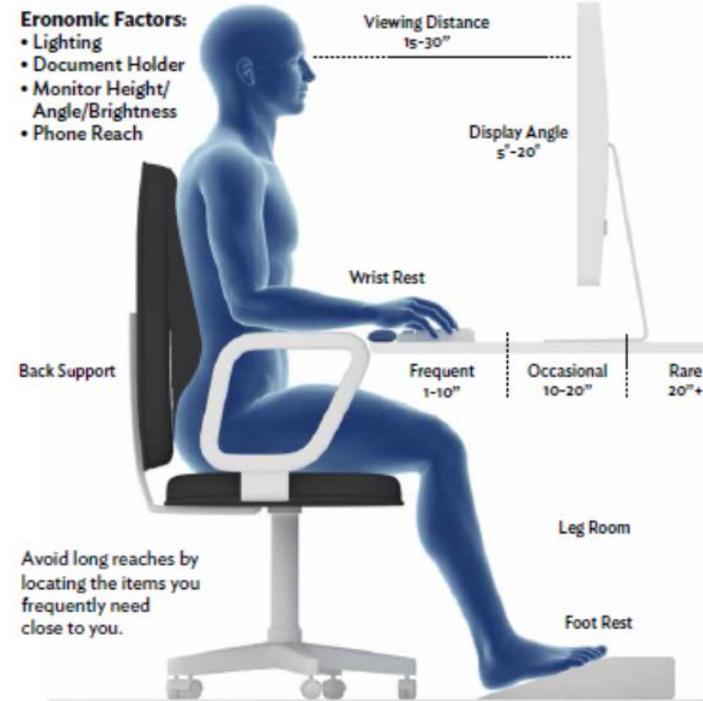


Computer Workstation

- Workstation
 - Chair
 - Keyboard & Mouse
 - Monitor & Document
- Work Process
- Environment
 - Lighting
 - Glare

WORK STATION

>> DESIGN



 **NovaCare**[®]
REHABILITATION
The Power of Physical Therapy™

For more information on
NovaCare Rehabilitation and the
WorkStrategies Program near you,
please call 866-554-2624.

Report any discomfort or pain to your immediate supervisor or manager.

NOVACARE.COM

© SelectStart 2011

Workstation Chair

- Seat Position
- Chair Height
- Armrest
 - Adjustment related to proper placement of the monitor, keyboard, mouse and work surface.



Seat Position

- Improper size, shape, or choice of materials for the seat pan and backrest result in uneven weight distribution, contact stress, decreased circulation of the extremities and awkward posture



Chair Height

- Proper Chair Height
- Hands parallel with desk
 - Knee slightly higher than the seat of the chair.
 - Chair height correct & feet are still off the floor? Consider a foot rest.
 - Entire sole of the foot can rest on the floor or footrest.



Armrests

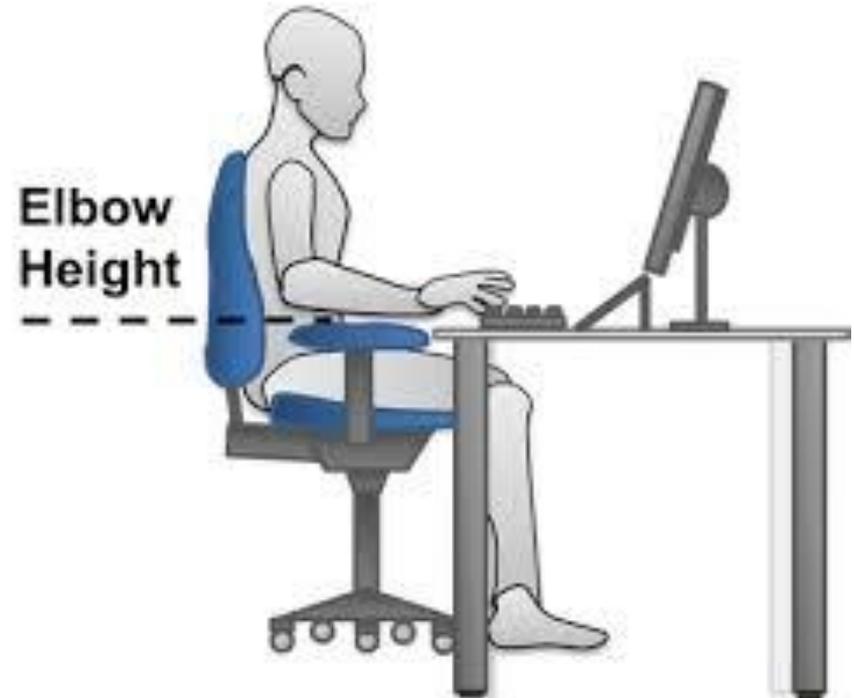
- Armrest should support both forearms while the employee performs tasks and should not interfere with movement.



Office chair with adjustable armrests

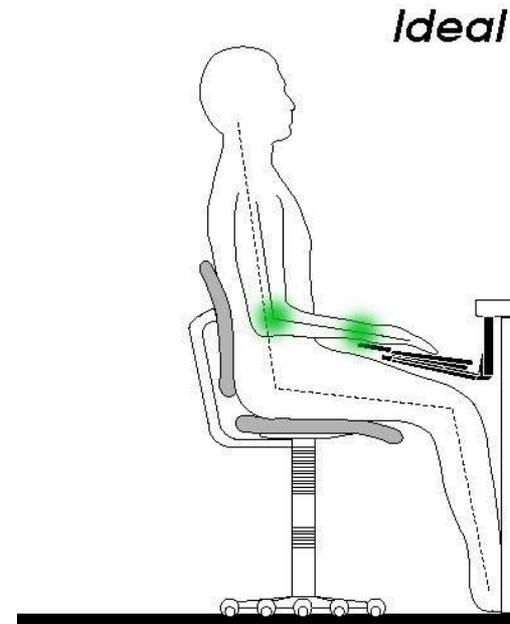
Workstation- Keyboard and Mouse

- Height and Orientation
- Placement
- Design and Use

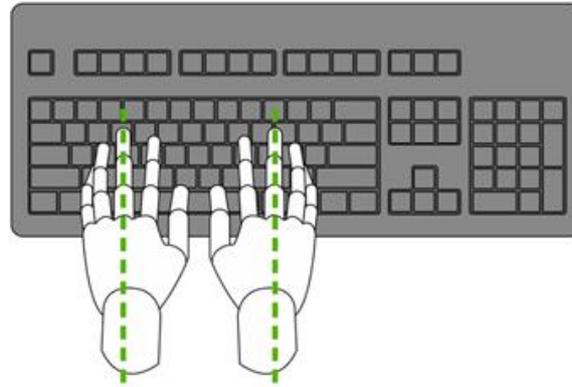


Height and Orientation

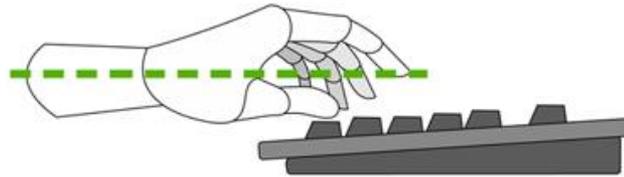
- Height should be declined so:
 - elbows are at the side
 - forearms are parallel to the floor or slightly declined
 - shoulders are relaxed.



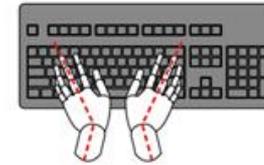
Wrist in Neutral



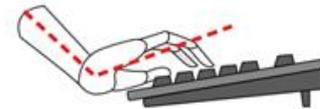
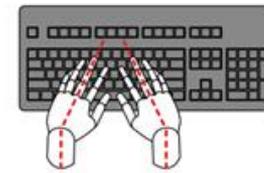
CORRECT



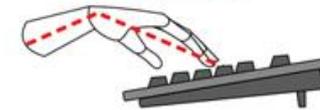
Avoid extension



INCORRECT



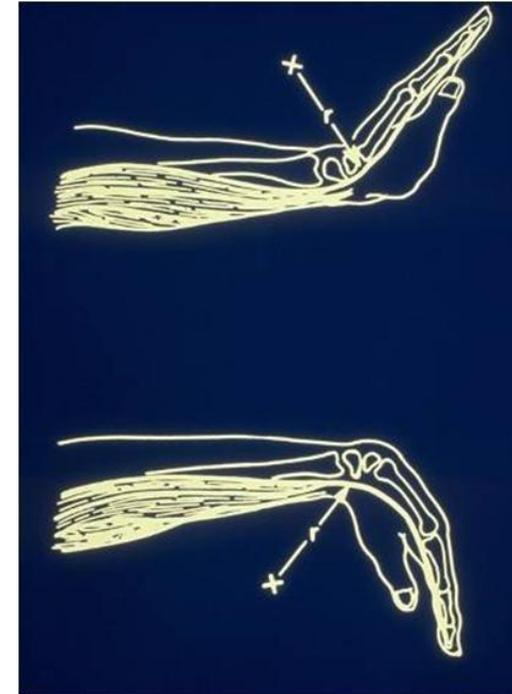
INCORRECT



Avoid Ulnar Deviation

Carpal Tunnel

- Is likely more the result of wrist position with keying and mousing rather than the number of key strokes or mouse clicks or movement.
- Wrist neutral to slight extension is optimal position.



Mouse position

- A rotating mouse platform that rotates above the keyboard can be used to keep the mouse in about the same plane and closer to employee



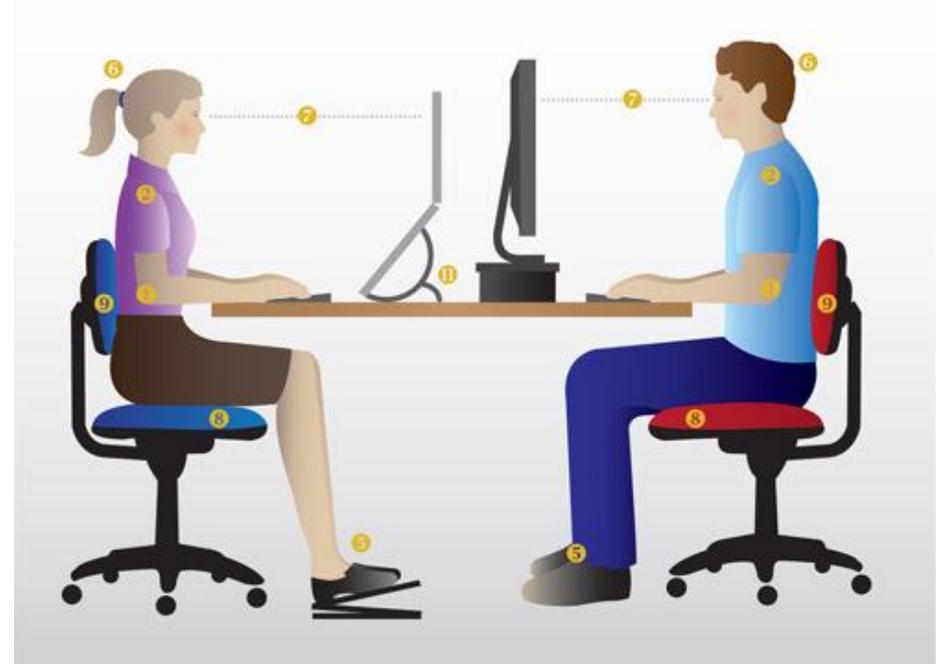
Workstation- Monitor and Document

- Display-Distance
- Primary Monitor
- Source Document Position
- Secondary monitor



Display

- Keep monitor directly in front of the user.
- View monitor as if driving your car
- Head in Neutral



Display Distance

- Viewing distances that are too short/long can cause eye strain or neck protraction.
- The preferred viewing distance is 18-30”.



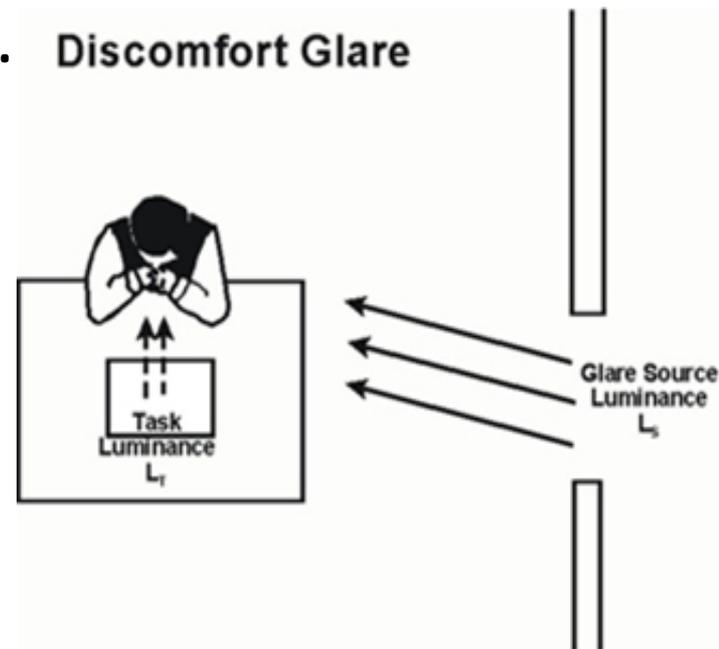
Eye Strain

- Long periods of viewing the monitor can cause eye fatigue and dryness.
- Rule of 20's! For every 20' viewing screen, look 20' away for 20"



Environment - Lighting

- Amount of Light
 - Bright light on display screen “washes out” images making it difficult for operators to clearly see work.
- Contrast of Light with Environment.
- Glare
 - Direct
 - Reflexed



Inappropriate Work Behavior Alert

- Working through breaks
 - Leads to
 - lack of rest breaks.
 - poor work quality
 - accidents



Working Excessive Overtime

- Overstressing muscles and tissues.
- Reduces rest and recuperation time.
- Not just occupation based.



Inadequate Medical Awareness

- Lack of awareness in facility may lead to latent treatment of conditions and causes.
- Encourage early reporting
- Educate employees on proper postures
- Change positions frequently
- Encourage micro-breaks



Inadequate Training

- About ergonomics
- Need for breaks
- Early reporting policy
- Need for intervention
- Complaints being burdensome



Work Habits to Decrease CTDs

- Keep work close to you
- Work in neutral postures
- Change positions often
- Utilize a headset



Keep it in Easy Reach

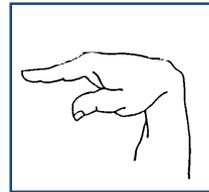
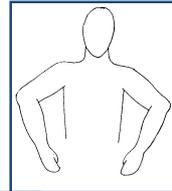


Reduced Reach: Decline

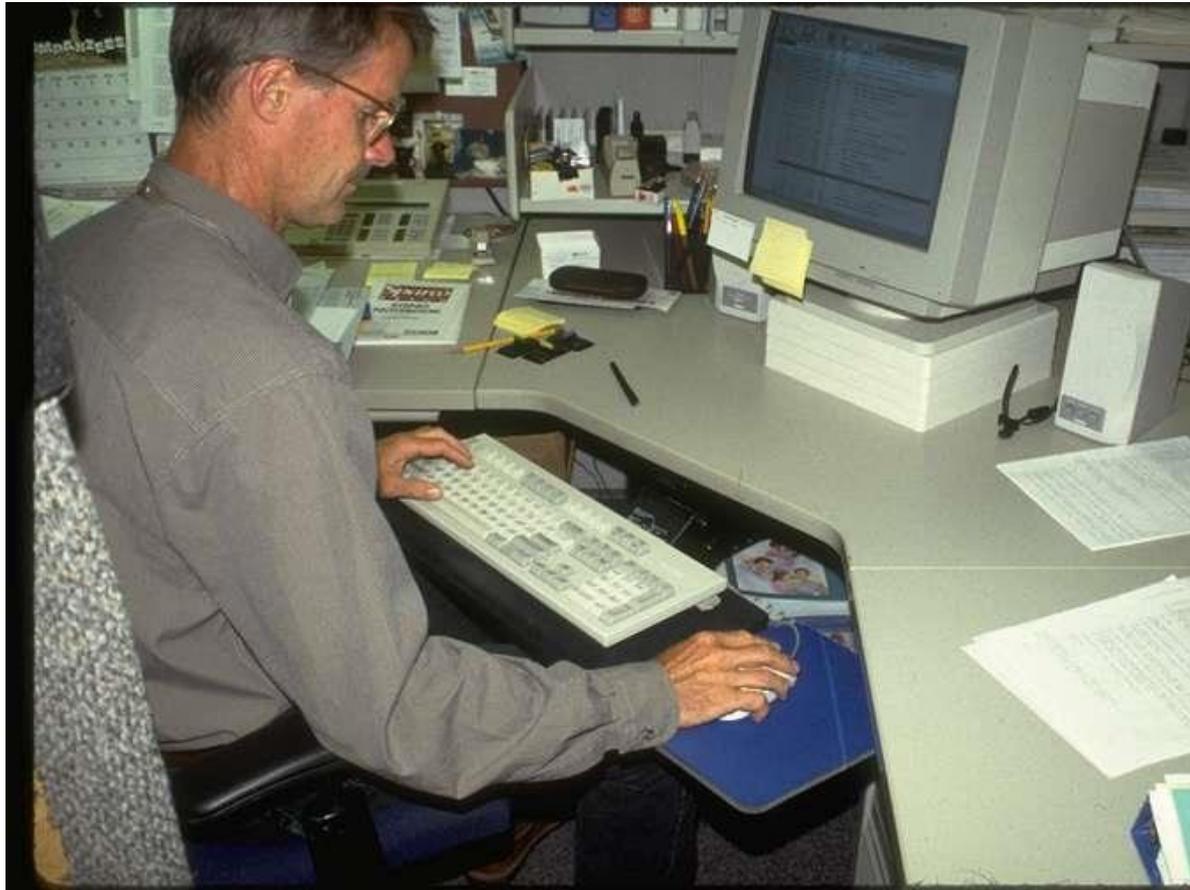


Work in Neutral Postures

- Neck Straight
- Shoulders Relaxed
- Elbows at your side
- Wrists Straight
- Three Curves in the Back



Elbows: At Side



Mouse position

Mouse/Keyboard too far from body



Mouse proper distance from body



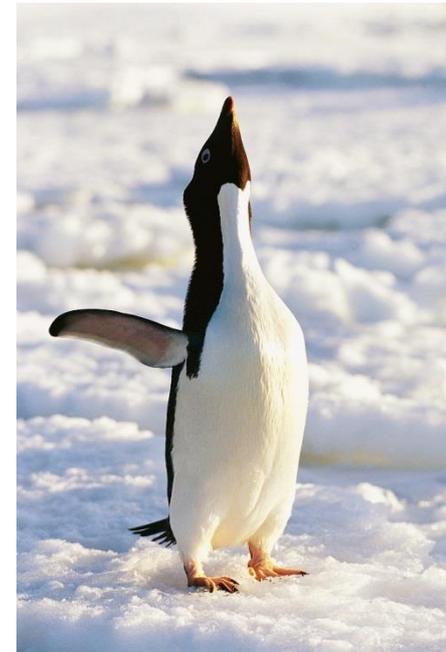
Move, Exercise, Stretch

- No one best posture
- Alternate sitting and standing
- Compensate for sustained postures

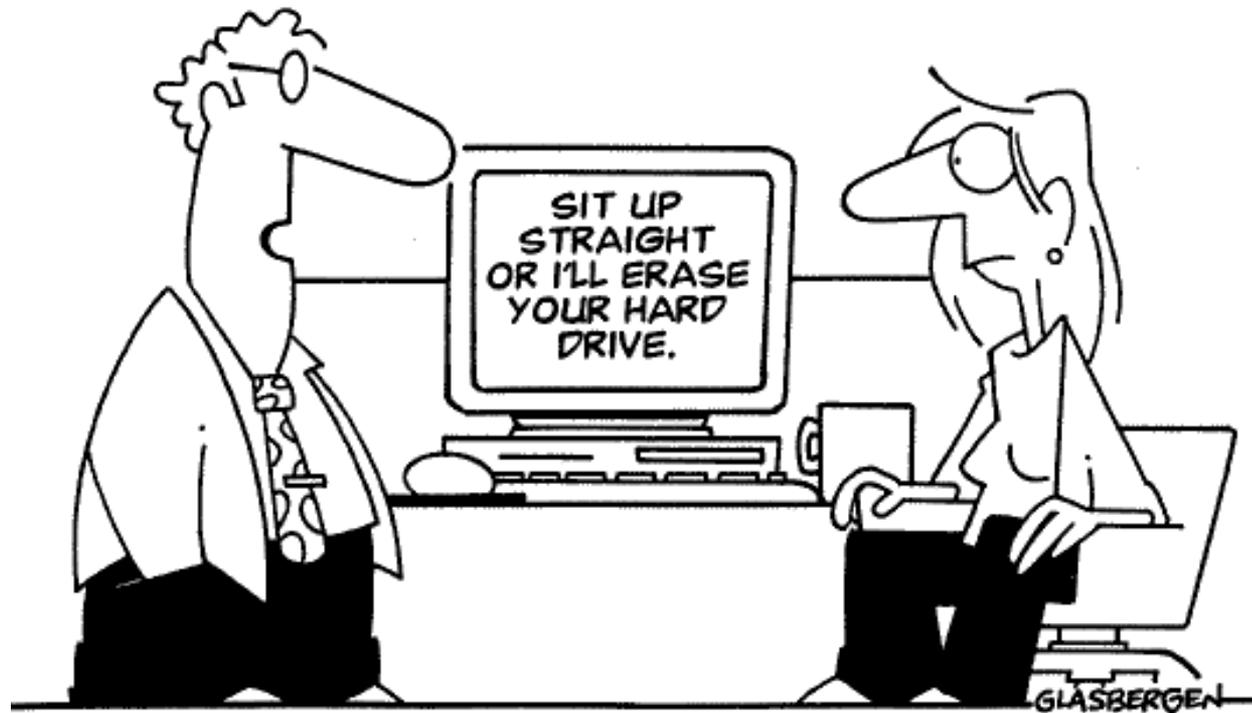


Encouraging Investment in Safety

- Ergonomic costs are minimal compared to injury costs
- Simple adjustments are free
- Educate to self-correct
- Photos are easier than ever to email or text!



© 2000 Randy Glasbergen. www.glasbergen.com



"It's called Ergonomics."

References

- OSHA www.OSHA
- Cornell University www.ergo.human.cornell.edu
- National institute of Occ Safety & Health
www.cdc.gov/niosh
- National Institute of Health www.nih.org
- US Dept. of Labor including BLS
- Washington State Department of Labor & Industry
www.Ini.wa.gov.wisha



Thank you for reviewing the
“Ergonomics” online presentation.

To meet the requirement for the Be
Well Reward Program. Please click
the link below and complete the
brief quiz.

[Take the Quiz, click here](#)