Office Ergonomics

Presented by the Minnesota Department of Administration

Risk Management Division

At the conclusion of today's course you will:

- Be able to identify at least 3 risk factors that contribute to work related injuries
- Be able to perform a self evaluation of your own work environment
- Be able to describe at least 1 change or modification that you intend to make to your workstation, job or work habits

ERGONOMICS

ERGO,WORK: NOMOS, NATURAL LAW

Ergonomics is the study of the relationship between people, their activities, their equipment, and their environment.

THE GOAL OF ERGONOMICS

The enhancement of human performance while improving health, comfort, safety, and job satisfaction.

Musculoskeletal Disorders (MSD's)

Affected Areas

- back
- upper extremities
- lower extremities
- eyes

Types of Disorders

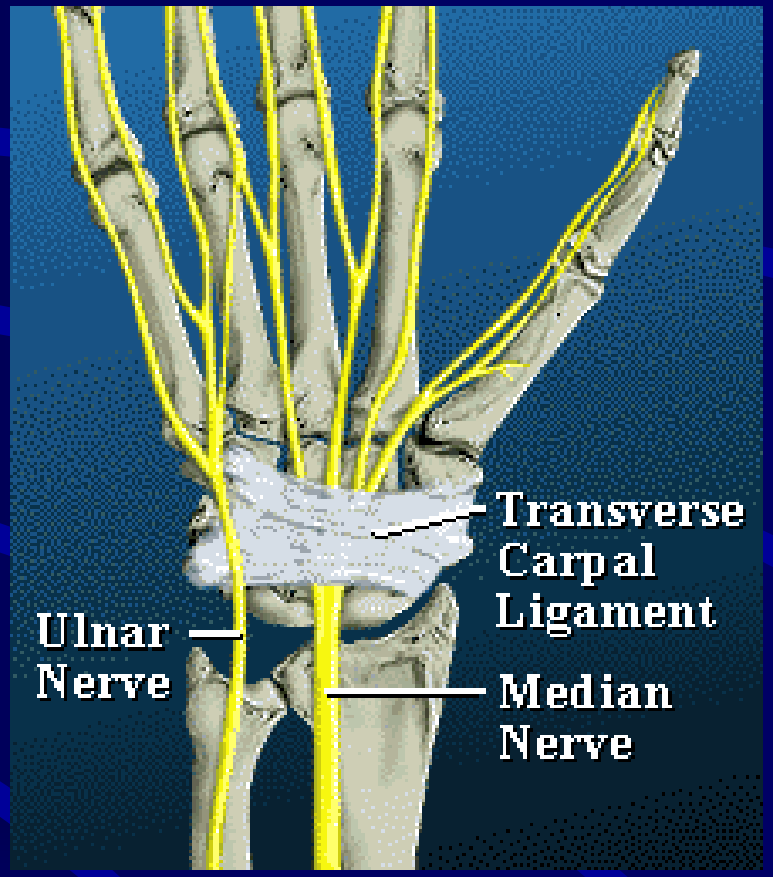
- muscles
- nerves
- tendons
- ligaments
- joints
- cartilage
- spinal discs

Symptoms

- soreness
- swelling
- skin discoloration
- numbness
- tingling
- burning
- radiating pain
- decreased strength
- decreased movement

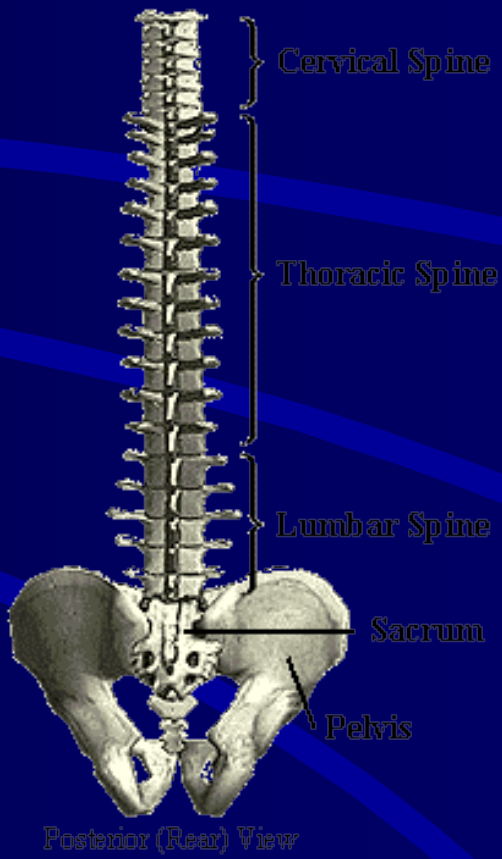
Common Upper Extremity Injuries

- Tendinitis
- Carpal Tunnel Syndrome
- Ulnar Nerve Compression
- Epicondylitis
- Thoracic Outlet Syndrome
- Rotator Cuff Impingement



Common Back Injuries

- Strain/Sprain
- Disc Bulge
- Disc Herniation



Eye Strain

- Dry Burning Eyes
- Blurred Vision
- Delayed Focusing
- Altered Color perception
- Headaches

Stretching

and more stretching..

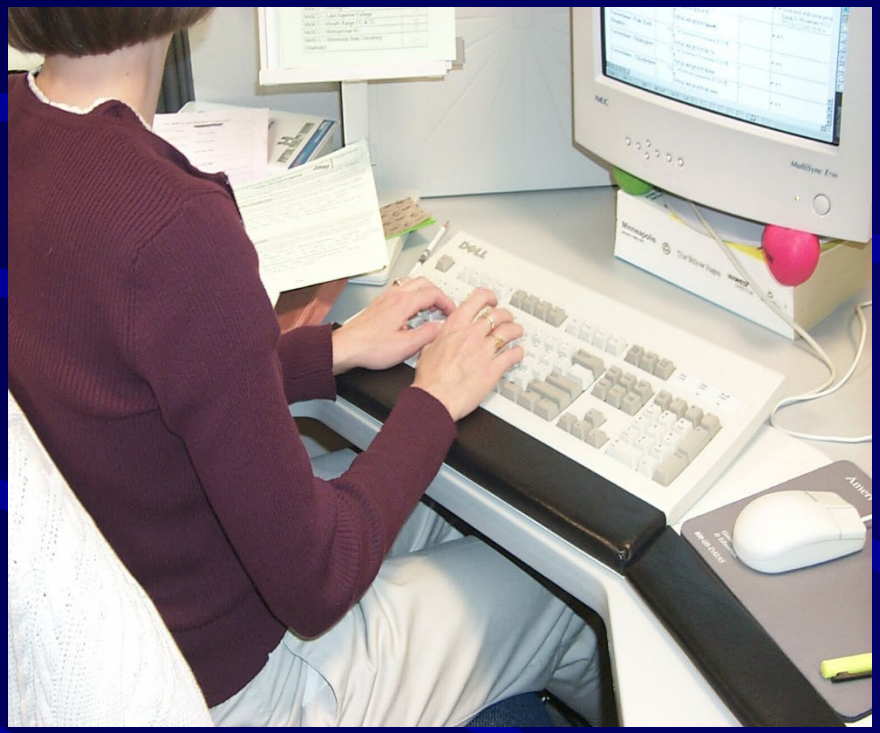
Risk Factors are elements or components of a task that increase the probability of cause or contribution to musculoskeletal disorders.

Occupational and Personal Risk Factors

- Repetition
- Force
- Forceful Exertions
- Awkward Postures
- Static Postures
- Contact Stress
- Environmental Factors
- Psychosocial Issues
- Smoking
- Medical Factors
- Hobbies
- Sports

Repetition

- Finger movement when keying
- Finger/hand movement when mousing
- Head movement between copy and monitor
- Eye refocusing



Force

- Lifting
- Carrying
- Pushing
- Pulling
- Poor body mechanics

Forceful Exertions

- Pinching
- Grasping
- Keying
- Mousing
- Writing
- Stapling

Awkward Postures

- Poor body mechanics
- Twisted torso
- Slouching
- Neck rotation/side bending
- Bent wrists
- Reaching overhead

Static Postures

- Prolonged sitting or standing
- Unsupported back
- Unsupported arms
- Neck rotation or side bending
- Vision fixed or staring

Contact Stress

- Resting the forearm, wrist or hand on hard or sharp surfaces can compress and damage muscles, nerves, and blood vessels.

Environmental Issues

- Seating
- Work surface
- Storage
- Lighting
- Air Quality
- Noise
- Privacy

Psychosocial Issues

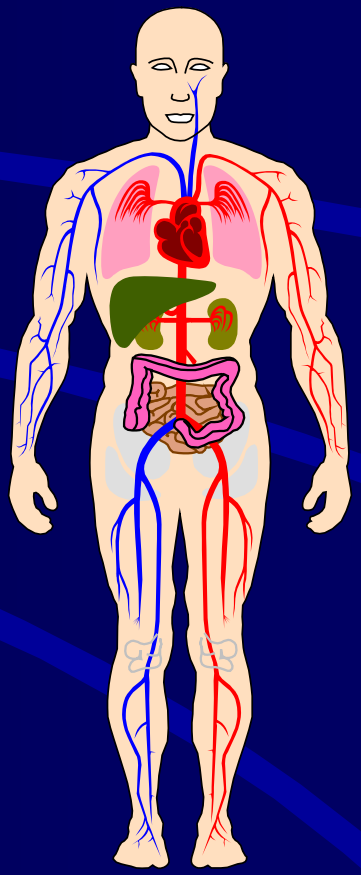
- Interactions with co-workers
- Job Satisfaction
- Work Culture
- Time Pressures
- Electronic Monitoring
- Performance Measures

Smoking

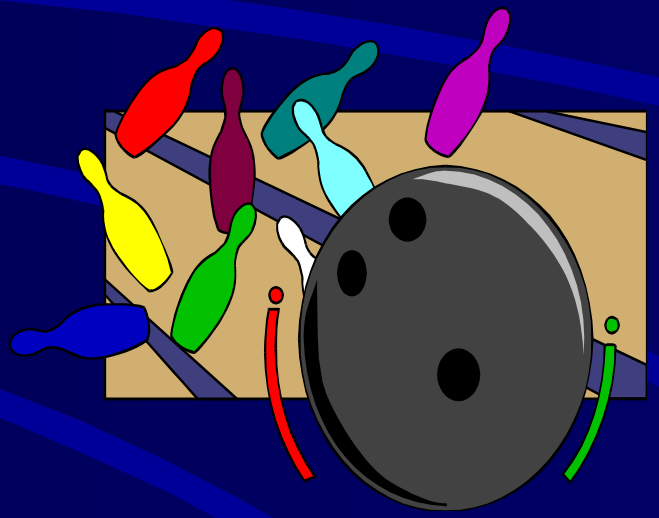
- Constricted Blood Vessels
- Reduced Oxygen
- Coughing (mechanical strain)

Medical Factors

- Previous Injury
- Illness
- Hereditary and congenital conditions



Hobbies and Sports



Fitting All The Pieces Together

- Seating
- Work surface
- Keyboard/Mouse
- Monitor
- Telephone
- Additional accessories
- Work/Rest Schedule
- Manual Material Handling

Accepted Postures

- Upright
- Thighs declined
- Reclined
- Standing
- Move throughout these postures

Sitting Basics

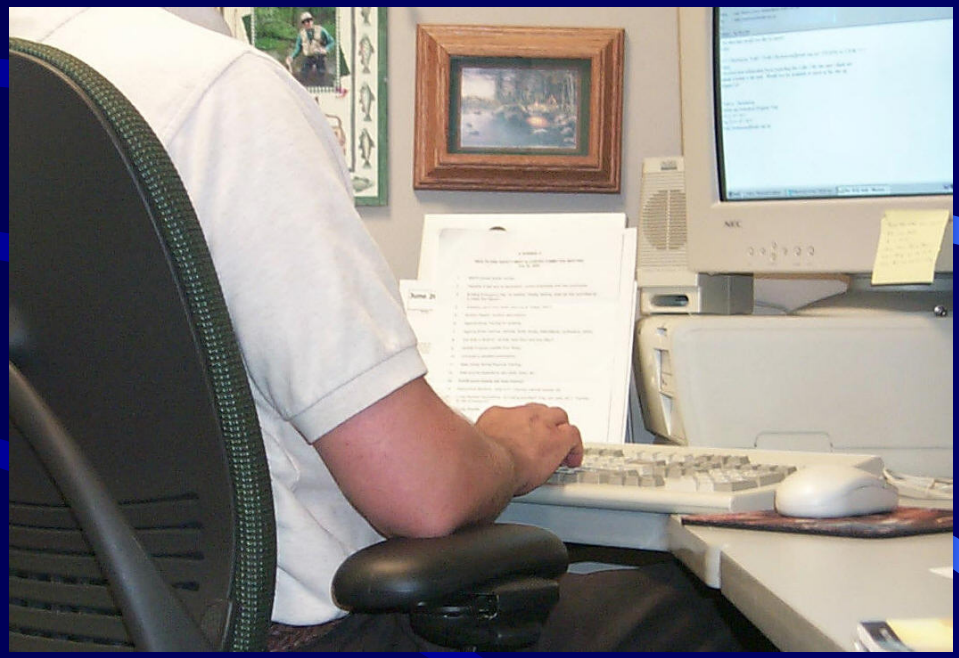
- Hips slightly higher than knees
- Feet supported
- Lumbar support below beltline
- Back Angle upright or slightly reclined
- Arms relaxed or supported

Work Surface Basics

- Designs should be based on job tasks
- Surfaces should be height adjustable
- Reading/writing surface 2 inches higher than elbow height
- Keyboard/mouse surface elbow height

Keyboard/Mouse Basics

- At or slightly lower than elbow height
- Neutral wrist postures
- Relax shoulders
- Use a light touch

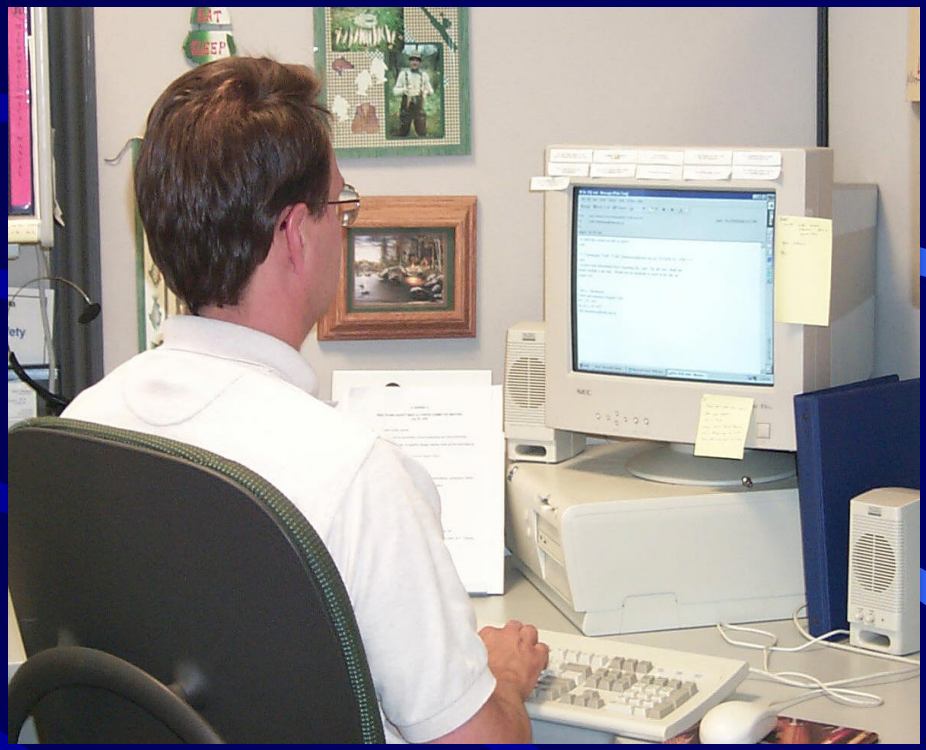


Alternative Input Devices

- Split keyboard design
- Vertical or Concave keyboard design
- Trackball
- Touchpad
- Mouse with a supinated angle
- Always use on a trial basis prior to purchase

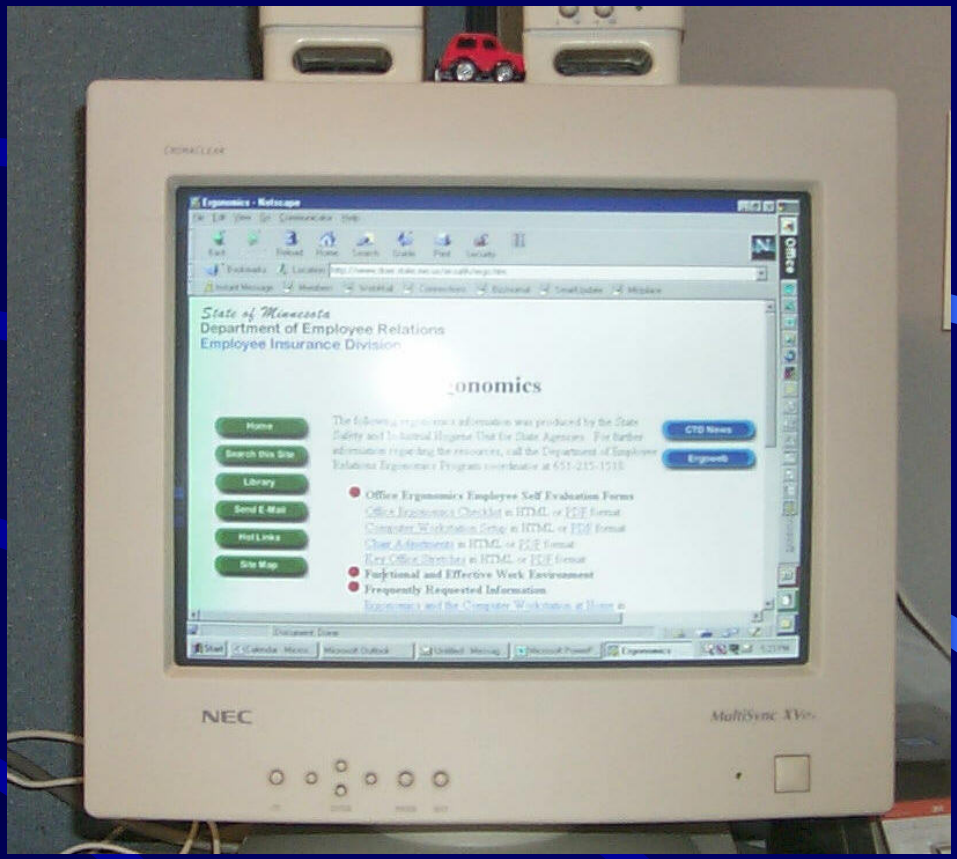
Monitor Basics

- 25-36 inches from eyes
- At or slightly lower than eye level
- Direct alignment
- Avoid glare or contrast from bright light sources



Additional Monitor Basics

- Ambient light levels 20-50 foot-candles
- Refresh rate 70-80 Hz
- Dark characters on a light background
- Clean monitor at least 1x per week

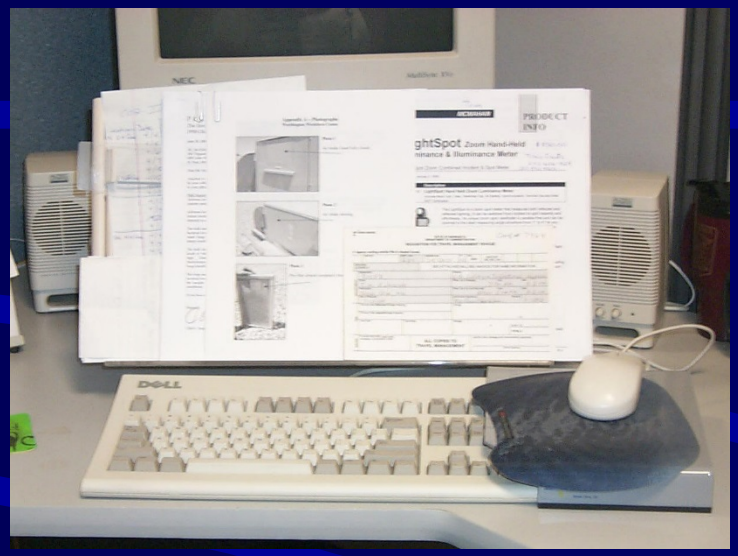


Telephone Basics

- Avoid cradling the hand set between your shoulder and head
- Hold the hand set with your non dominate hand.
- Use a headset or speaker phone when appropriate

Source Documents

- Document holder
  - adjacent to monitor
  - between monitor and keyboard
- Reading/Writing Slope



Additional Accessories

- Large grip pen/pencil
  - decrease stress on muscles/tendons

- Wrist rest
  - use only while pausing between key strokes

- Footrest
  - essential when feet do not touch the floor
  - help promote postural changes

Work/Rest Schedules

- Rotate job tasks at least 1x per hour
- Utilize scheduled breaks
- Incorporate stretching into daily routine
- Change postures frequently
- Get out of your chair

Manual Material Handling

- Use good body mechanics
- Know your abilities
- Push/pull instead of lift/carry
- Get assistance

Risk Factor Identification and Solutions

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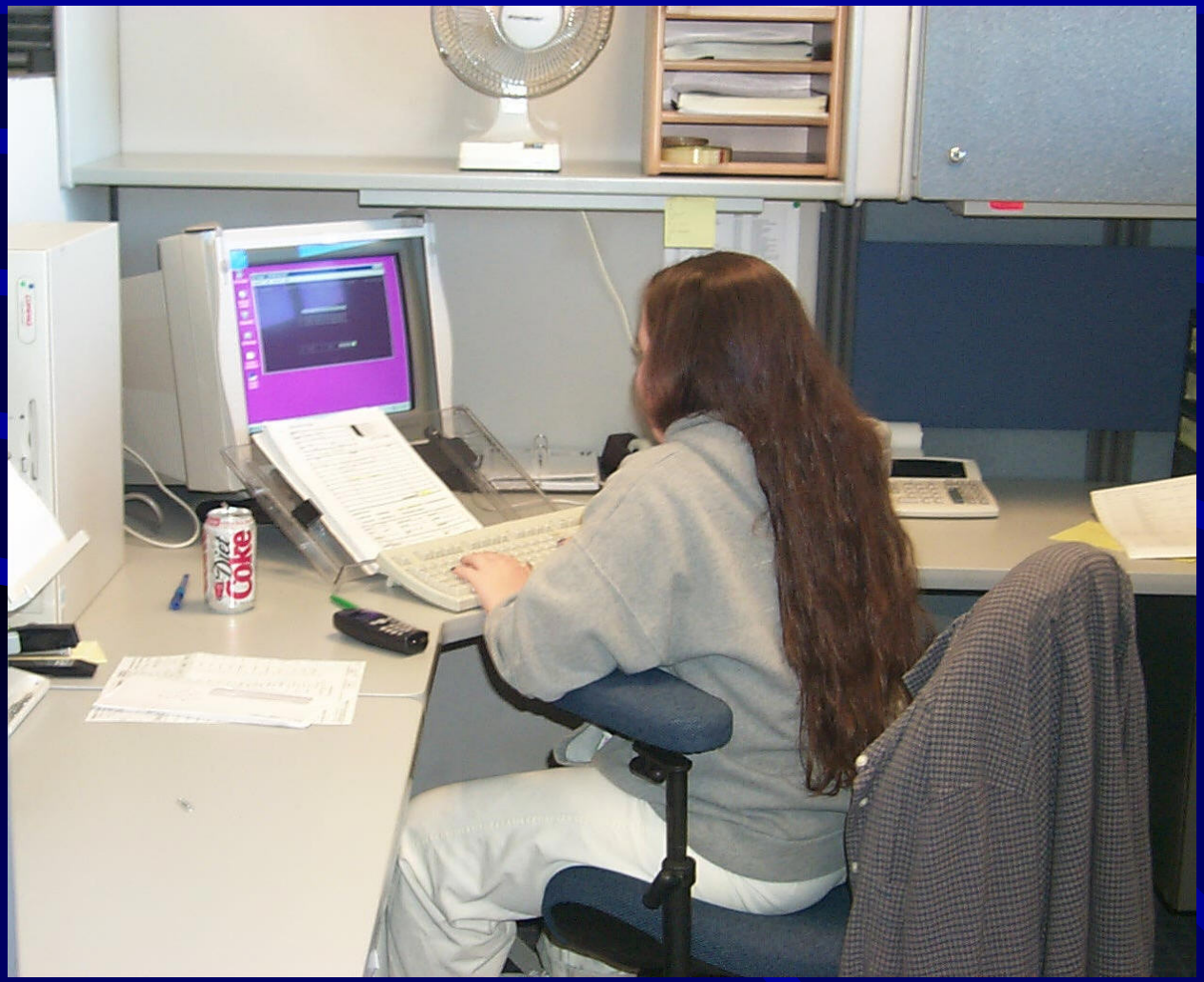

Your Responsibilities

- Encourage functional and effective work environments
- Learn and use adjustment features
- Organize workflow
- Use neutral body postures
- Stretch/exercise
- Rotate job tasks
- Promote positive employee, supervisor relations
- Report symptoms promptly
- Demonstrate self responsibility and healthy lifestyles
- Perform a self evaluation and modify workstation, job or habits

Resources

- Your agency safety professional
- MNOSHA
  - Office Ergonomics
- Federal OSHA
  - https://www.osha.gov/SLTC/etools/computerworkstations/
- Mayo Clinic
  - https://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/office-ergonomics/art-20046169
- Risk Management Website:
  - https://mn.gov/admin/government/risk/safety-loss-control/ergonomics/

Put It Together