

Office Ergonomics



Presented by the Minnesota Department of
Administration
Safety and Industrial Hygiene Unit

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:

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

Work Related Musculoskeletal Disorders (WMSD's)

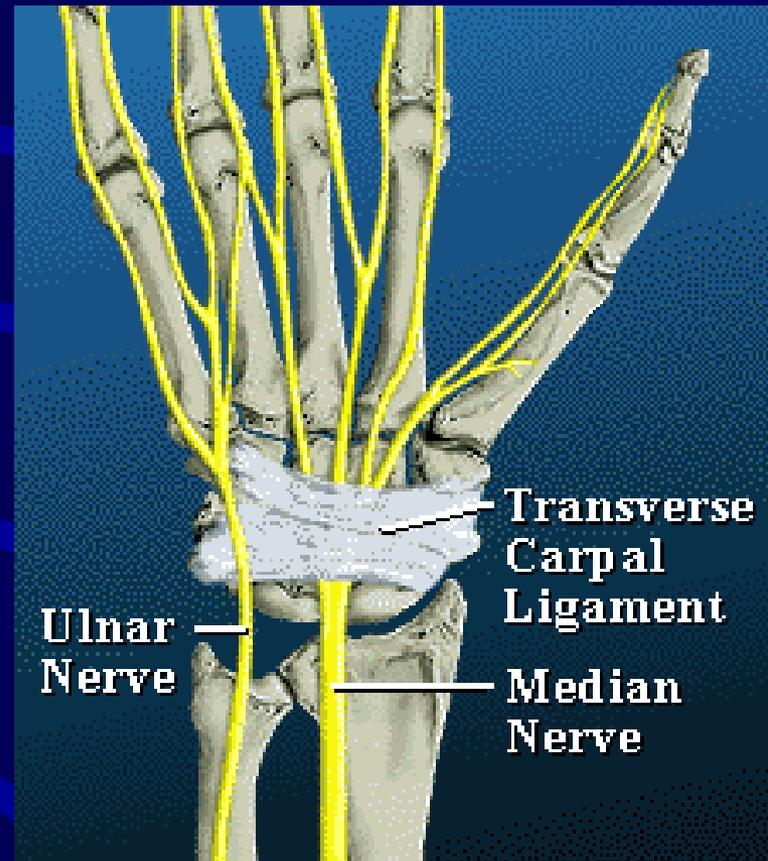
- Musculoskeletal disorders to which the work environment and the performance of work contribute significantly

or

- Musculoskeletal disorders that are made worse or longer lasting by work conditions

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



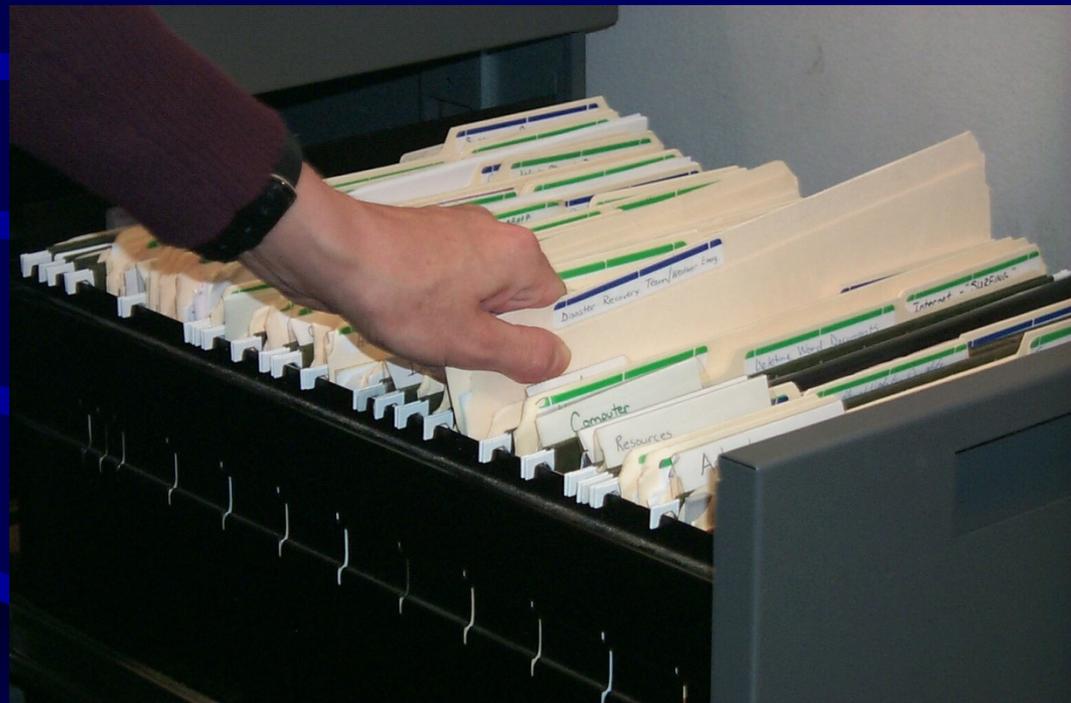
Force

- 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



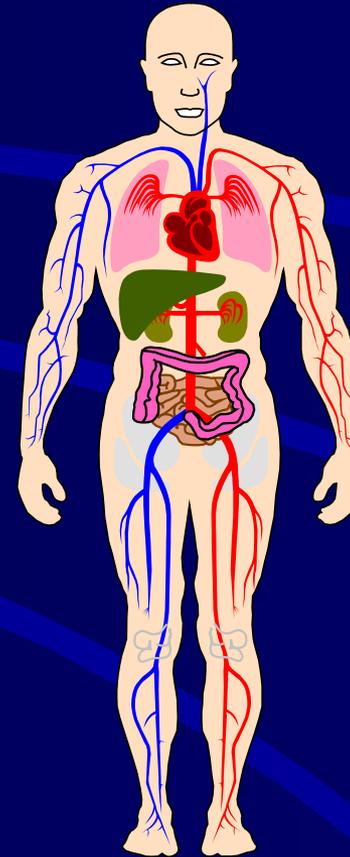
Smoking

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

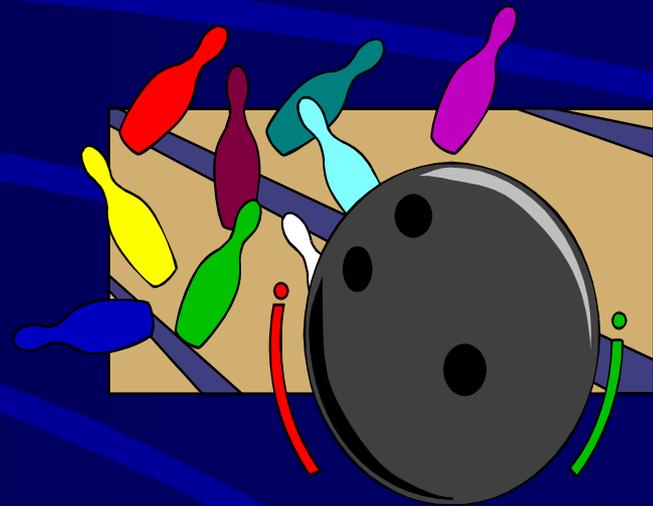
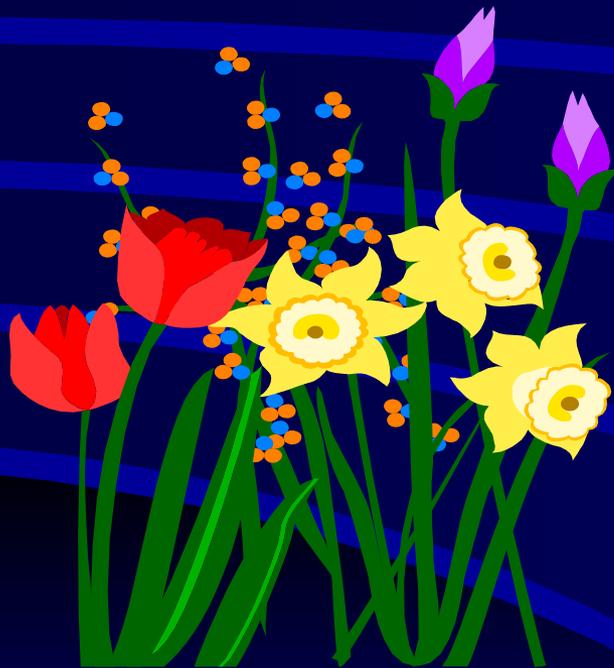


Medical Factors

- Previous Injury
- Illness
- Hereditary and congenital conditions



Hobbies and Sports



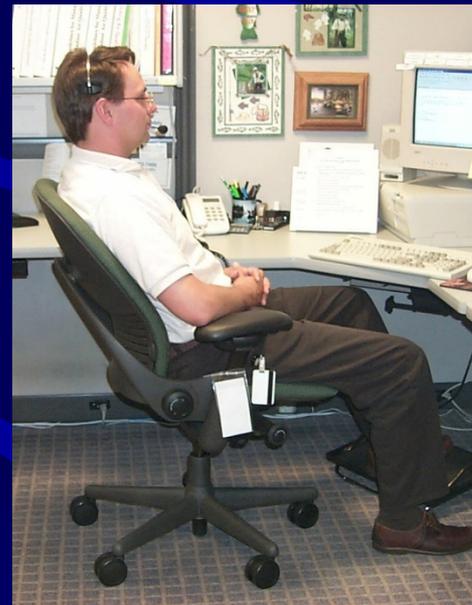
Fitting All The Pieces Together

- 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



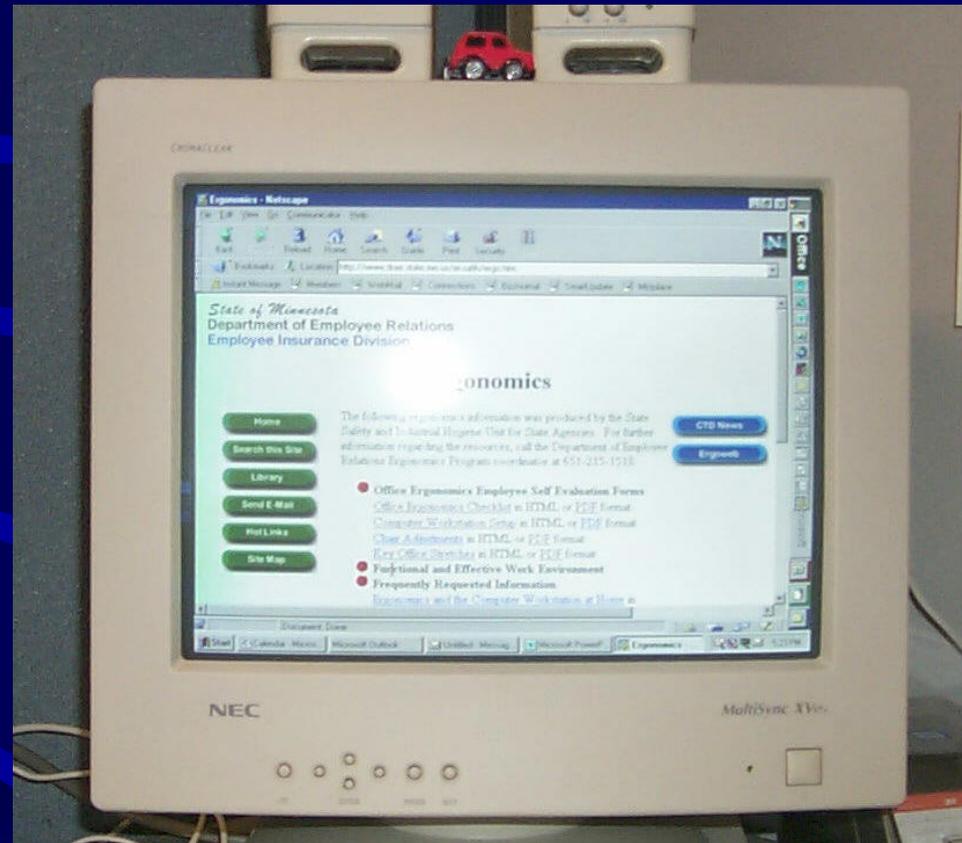
Monitor Basics

- 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



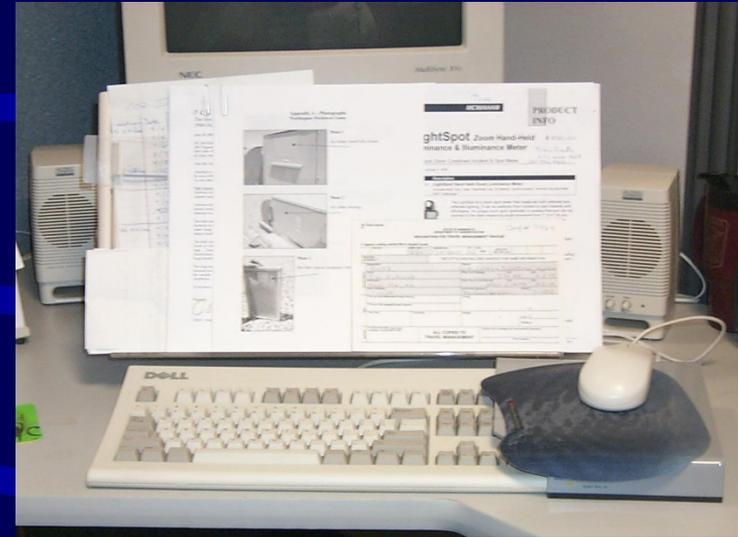
Telephone Basics

- 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



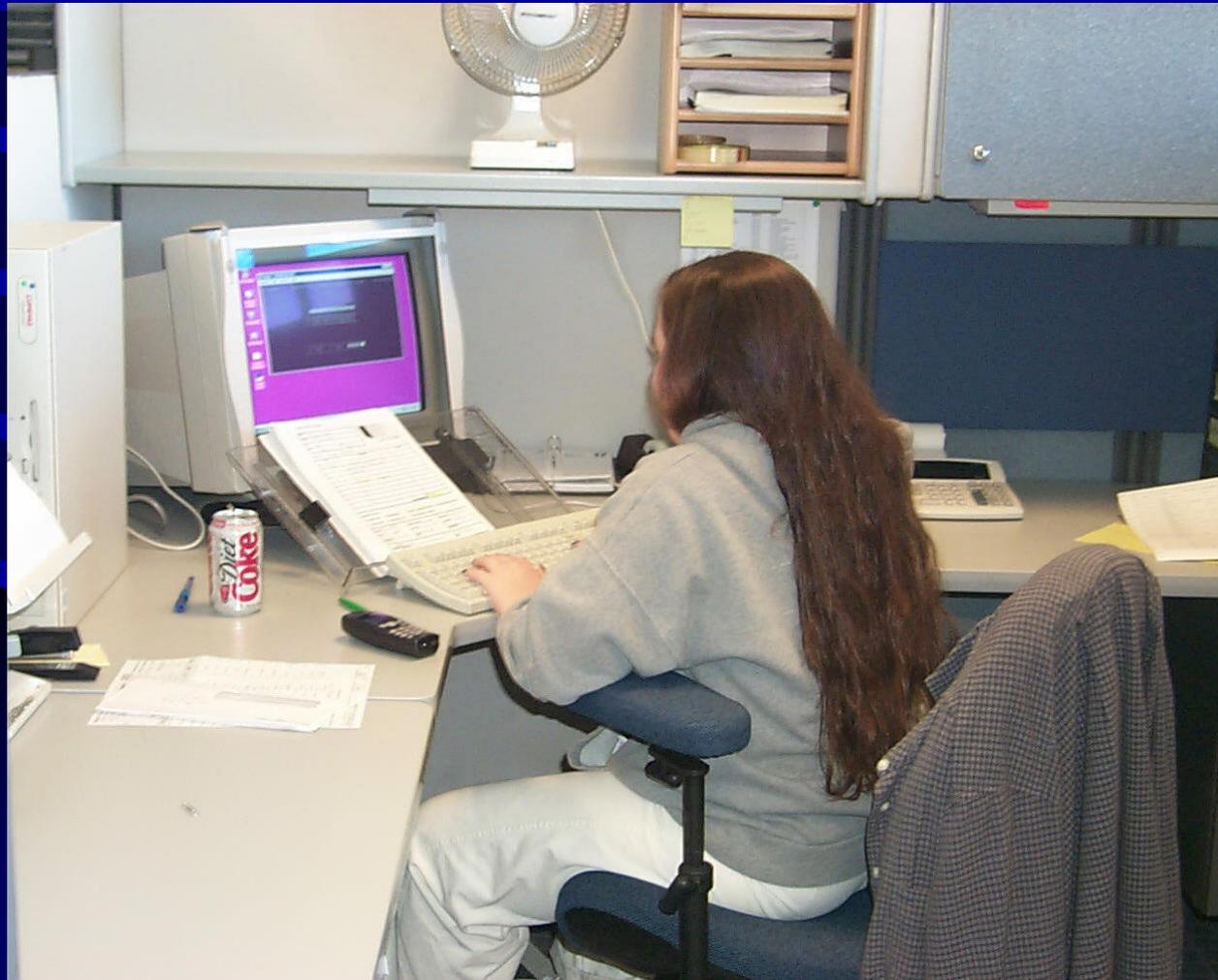
Risk Factor Identification and Solutions



Risk Factor Identification and Solutions



Risk Factor Identification and Solutions



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
- Doer's Safety and Industrial Hygiene Website:
 - www.doer.state.mn.us/ei-safih/ergo.htm
- Videos
- Interactive CD ROM

Put It Together

