Ergonomics
Why Study Ergonomics?

• Technology has had a profound effect on the way we live and work.

• We are spending more time sitting and using computers.
  – “At the end of an average eight-hour workday, the fingers have walked 16 miles over the keys and have expended energy equal to the lifting of 1 1/4 tons.” - DataHand

• Which has greatly increased the occurrence of related musculoskeletal disorders.
Important for Employers

- Increases productivity
- More satisfied employees
- Less time off of work
- Employees have the right to be comfortable
- There should not be a risk of injury associated with your job
  - Any job!
What is it?

• Ergonomics is the study of how people interact with their activities and their environment.
• The purpose of ergonomics is to improve health and safety, prevent injuries, and improve productivity.
Why You?

• Did you know that the average teenager spends an average of 31 hours a week on a computer?
  – This number DOES NOT include school
• That is about 4.4 hours a day, every day!
• Plus whatever time you are on it at school – this will vary depending on your courses
Teen Specific

• Due to the number of hours spent
  – You are at risk
  – Both at home and at school
  – You need to know what to do

• Some say your risk is greater...
  – Your bones are not fully calcified so...
    • If you slouch
    • If you hunch
    • You could cause yourself injury
Office Ergonomics

• This is what we deal with mostly
• A look at how our desks are set up
  – To reduce stress
  – To prevent injury
• Our comfort level
• Where and how things are placed
  – To maximize productivity but minimize injury
• How things are used
  – Depends on persons job
Look at your own

• Think for a second about your workstation
  – Are you comfortable?
  – What would make you more comfortable?
  – Are things you need easy to reach and use?
  – Make small adjustments to increase your comfort
Head and Neck & Eyes

• Keep it straight, centered and comfortable
• Place your monitor directly in front of you
  – About an arms length away
• Blink frequently – every few seconds
• Take breaks
• Refocus your eyes to keep them active
Types of Breaks

• **Eye Breaks** - Every 15-20 minutes you should look away from the screen for awhile preferably at an object 20 or more feet away. This will allow your eyes to relax and refocus on a more natural plane. Blink your eyes rapidly for a few seconds.

• **Micro-breaks** - most typing is done in bursts rather than continuously. Between these bursts of activity you should rest your hands in a relaxed, flat, straight posture.

• **Rest breaks** - every 30-60 minutes you should take a brief rest break. During this break stand up, move around and do something else.
Hand and Wrist

• Keep hands and wrists straight and relaxed
• Don’t put pressure on the wrists
• What do you look like when you type?
Mouse Movement

• Use whole arm to move mouse
• Keep the elbow bent
• This may mean you need to sit closer or have your mouse closer to you
• Keep the wrist straight
  – Don’t bend it
  – Don’t put pressure on it
Your Back

• Try to maintain the natural "S" curve of your spine (use your seat back to support your lower back)

• Sit fully back in your chair with your back firmly against the backrest

• Adjustable chairs are best
  – Seat pan and height

• Shift your position from time to time to avoid fatigue
A Few Exercises

• To relax your wrists and hands try the following:
  – Make a tight fist, hold for a second, then stretch your fingers out wide and hold for five seconds. Repeat.
  – With your arms outstretched in front of you, raise and lower your hands by bending them at the wrist (as though you are waving "Goodbye", but slower). Then rotate your hands ten times in the air with your open palm facing outward (as though you were erasing something from a chalkboard).
Back, Arms and Shoulders

• While seated at your desk or workstation, stretch your shoulders, arms, and ribcage by reaching overhead as far as you can and hold for a few seconds.

• Also while seated you can help relieve tension on your neck and shoulders by rotating your head slowly from side to side.
  – Other neck stretches include tipping your head towards your shoulders and lowering your chin to your chest.
Common Injuries

- Bursitis
- Carpal tunnel syndrome
- Muscle strains, often affecting the neck, upper back, lower back, and shoulders
- Tendinitis
RSIs

• RSIs can occur from playing sports or from spending too much time on a computer
• Symptoms of RSIs include:
  – tingling, numbness, or pain in the affected area
  – stiffness or soreness in the neck or back
  – feelings of weakness or fatigue in the hands or arms
  – popping or clicking sensation
Injuries Can Occur

• Always be aware of your comfort
• If something is bothering you – tell me
• Take breaks if needed
Discussion

• Any questions?
• Take a few moments to adjust your workstation to suit your needs
• Of course we are limited but we should do what we can
• Be sure to do this every day when you come in
• Your workstation should reflect your needs
Next Steps

• Read the article on “Ergonomics Today”
• Answer the reflective questions.
• We will discuss this as a class.
• You will have 10 minutes silent reading and reflection on the article