



# Ergonomics in the Work Place

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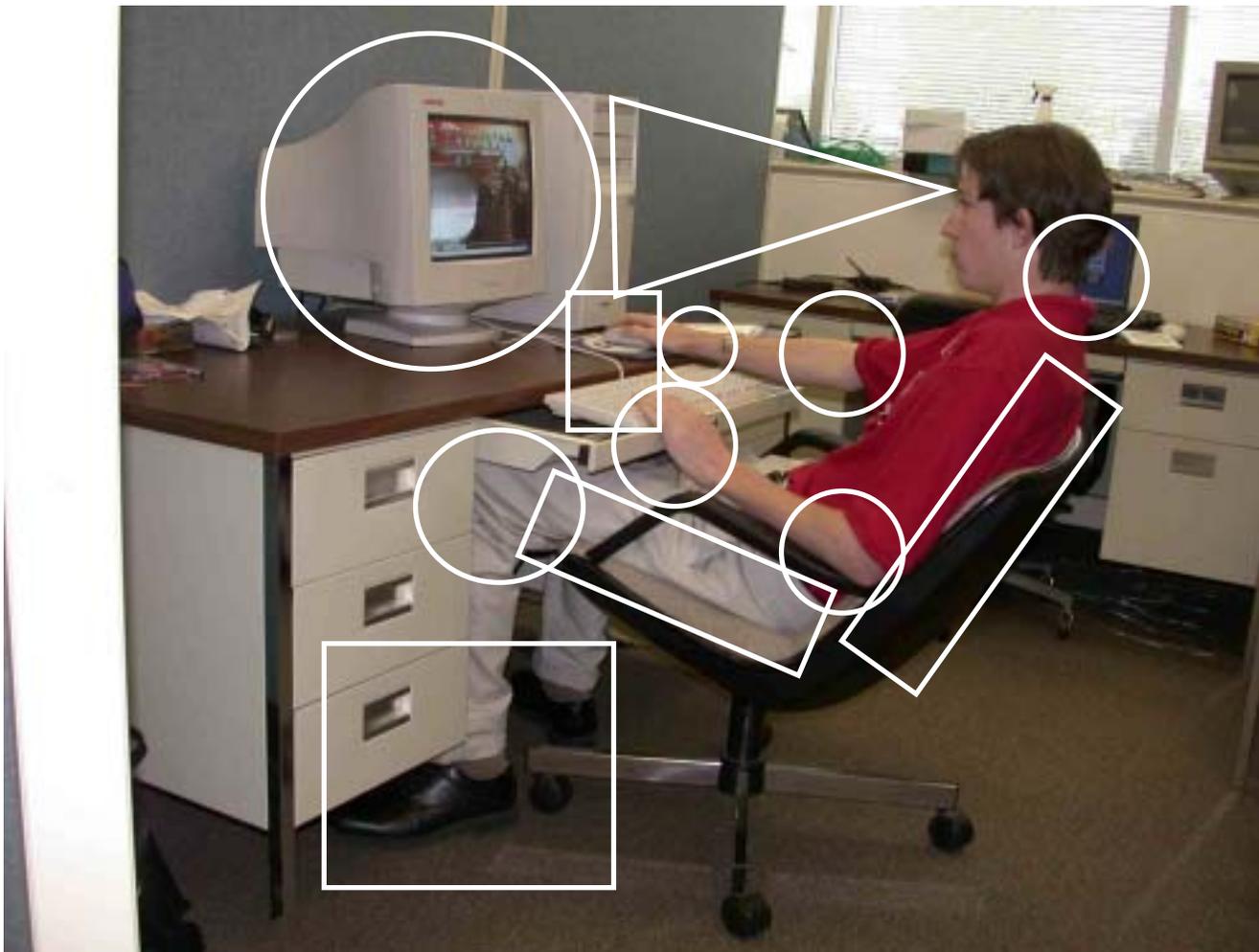
# Ergonomic Quiz



- There are 12 things wrong with this picture-can you find them?



# Ergonomic Quiz



1. Monitor Position
2. Viewing Angle
3. Neck curve
4. Back position
5. Left elbow resting
6. Right Forearm resting
7. Left hand position
8. Right wrist resting
9. Leg to floor angle
10. Mouse to keyboard position
11. Knee bend
12. Foot Position



# Repetitive Strain Injury Impact to MSFC

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**Number of People Affected / U.S. Population = 1.8M / 287M = 0.00627**

**Average Cost of Claims x Number of People Affected x 5 = 5 year average cost**

**Calculations are per year**

**(Medical Cost Only)**

Organization	Number of estimated people	Number of people affected yearly	5-year average cost
Avionics Dept.	219 Civil Servants	1.4 people	\$77,000
Engineering Directorate	700 Civil Servants	4.4 people	\$242,000
MSFC	2,636 Civil Servants	16.5 people	\$9,075,500



# Presentation Goals

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- Provide awareness of ergonomic issues
- Provide valuable research and resources for further investigations
- Provide information on employees' legal injury rights
- Help you ergonomically configure your work places through guidelines
- Help you live a more comfortable life through ergonomic awareness and ergonomic impacts



# The Facts

- Repetitive Strain Injuries (RSI) are the nation's most common and costly occupational health problem
- RSI affects 1.8 million American workers per year
- RSI costs more than \$20 billion a year in workers compensation claims
- U.S. Bureau of Labor Statistics reported that nearly two-thirds of all occupational illnesses reported were caused by exposure to repeated upper body (the wrist, elbow or shoulder) trauma to workers

Continued.....



# The Facts Continued

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- Musculoskeletal disorders, including carpal tunnel syndrome, are among the most prevalent medical conditions in the U.S., affecting 7% of the population
- Musculoskeletal disorders account for 14% of physician visits and 19% of hospital stays
- 62% of the persons with musculoskeletal disorders report some degree of limitation on activity, compared with 14% of the population at large
- 849,000 new cases of carpal tunnel syndrome occurred in 1994 alone (cases have exploded since)



# Common Causes of RSI

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- Ignoring early symptoms
- Not aware of ergonomics
- Poor posture
- Improper office furniture
- Too lazy to improve our bad ergonomic habits
- Improper office set-up
- Not taking Breaks
- Lack of Exercises

1. Carpal tunnel syndrome (CTS)
2. Tendonitis
3. Bursitis
4. Cubital tunnel syndrome
5. Tenosynovitis
6. Epicondylitis (tennis elbow)
7. DeQuervain's disease
8. Trigger finger
9. Bicipital tendonitis
10. Rotator cuff tendonitis
11. Cervical radiculopathy
12. Thoracic outlet syndrome
13. Raynaud's disease

Information example on  
Tendonitis follows...



# Tendonitis

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Tendonitis is an inflammation of the strong, white fibrous tissues that connect muscles to bones. This tissue is called a tendon. Tendonitis can be associated with a calcium deposit, which can cause inflammation. It is one of the common causes of acute pain in the shoulder and can occur after an injury, or as a result of one movement repeated over and over. In rare cases, it may also result from a disease.

- Nearly 4 million American workers have tendonitis, many of them in their wrists and arms
- 28 % of 100 cases of tendonitis resulted in 31 days or more missed work
- The median for days missed out of 100 cases was at least 10 days

<http://www.yourhealth.com/ahl/2109.html>

<http://www.catspaw.com/carpaltunnel.html>

<http://www.bls.gov/news.release/osh2.t09.htm>



# Tendonitis Causes

- Poorly-fitted shoes that rub against foot tendons
- Bone spurs in the feet or elsewhere that irritate tendons
- Obesity, which puts abnormal pressure on the legs and feet
- Repeated overuse of the wrist, which can inflame the tendons
- Overuse of the tendons in the shoulder, as in swimmers, tennis players, etc.
- Overuse of arm muscles, which can cause inflammation of tendons in the elbow, commonly called tennis elbow



# Tendonitis Symptoms

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- A sharp or achy pain
- Tenderness and swelling
- Restricted movement in the area surrounding the injury
- Weakness in the arm or leg due to pain



# Tendonitis Treatments

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- Strict rest of the affected area
- Application of ice to reduce swelling for the first 24 to 48 hours
  - 15 min. with ice, 15 min without
  - Longer than 15 min. may increase swelling.
- After 48 hours, try applying moist heat for deep muscle relaxation
- Try an over-the-counter, anti-inflammatory pain reliever such as aspirin, ibuprofen, Advil or Motrin



# Tendonitis Prevention

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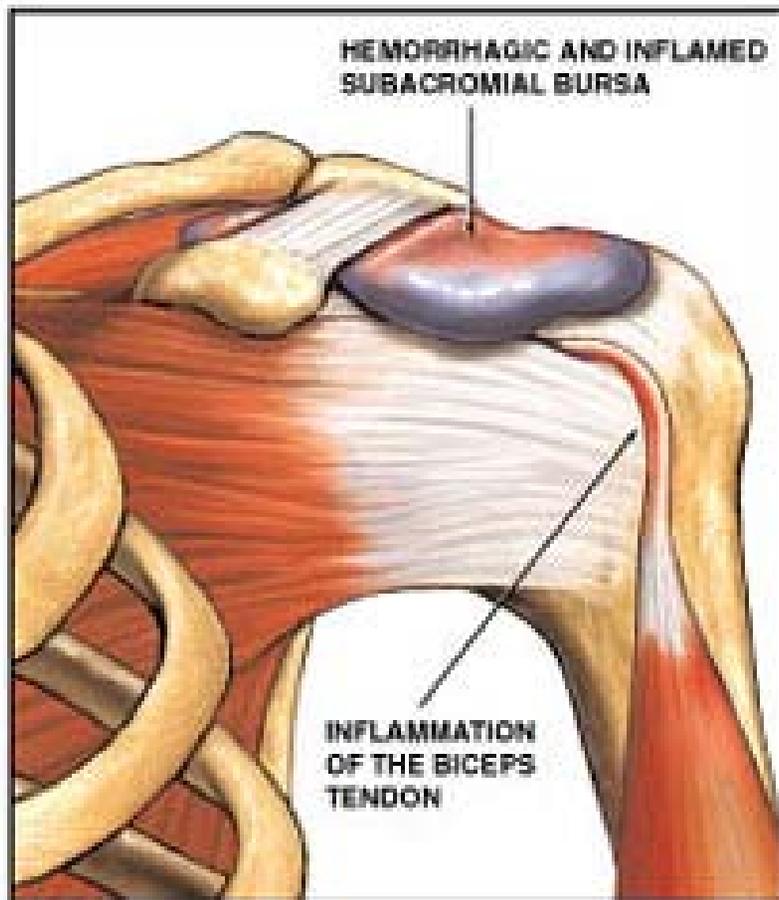
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- Avoid activities that require you to reach overhead for long periods
- Don't move your shoulder repeatedly for a prolonged period
- Don't clench your fists
- Avoid repeated hand and finger motions
- Don't lean on your elbows, and avoid bumping them
- Sit on cushioned chairs
- Wear comfortable shoes that fit properly
- Exercise on level, graded surfaces



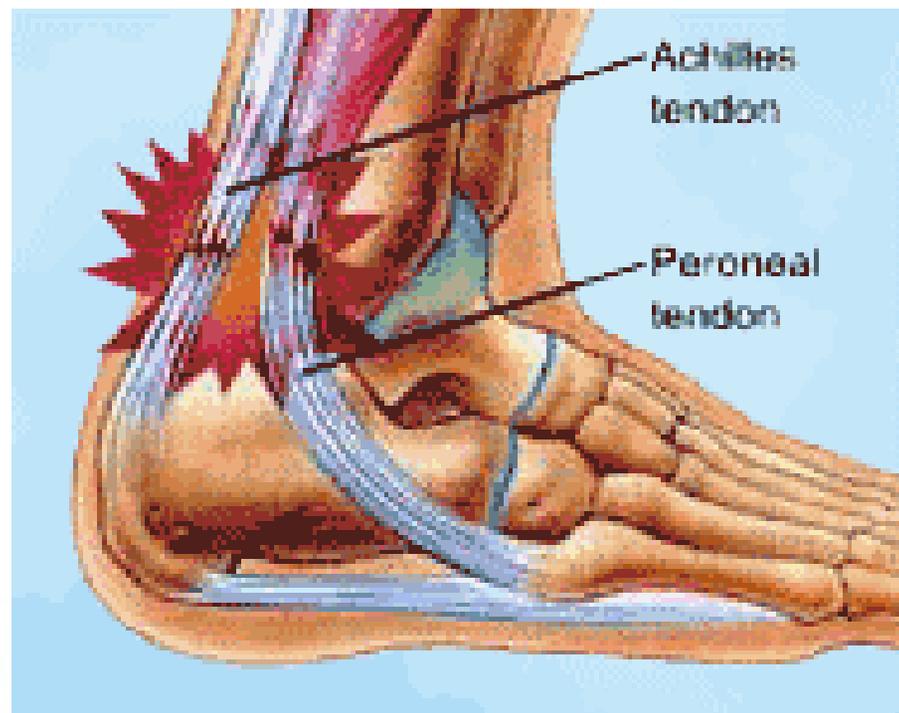
# Tendonitis Up-close

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ANTERIOR VIEW OF THE SHOULDER REGION

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# MSFC Medical Resources

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- Ergonomic Office Evaluations
  - Contact: AD02M/Scott Pinkston/4-8370
- Special Furniture & Equipment
  - Contact: Craig Murdoch/4-2130
  - Catalog available at [inside.msfc.nasa.gov/FC/cata.html](http://inside.msfc.nasa.gov/FC/cata.html)
  - Display room for furniture and equipment in building 4471/A106
  - MSFC Medical Evaluation required
  - Private Doctor's note stating special needs required
- Worker's Compensation Claims
  - Contact: QS50/Annette Loveday/4-2428
  - Forms: [http://www.dol.gov/library/forms/forms/ESA-OWCP/Form\\_CA-7.pdf](http://www.dol.gov/library/forms/forms/ESA-OWCP/Form_CA-7.pdf)  
<http://www.dol.gov/library/forms/forms/ESA-OWCP/Form%20CA-2.pdf>
  - Many limitations and restrictions
  - Limitations on 2<sup>nd</sup> opinions
  - Limitations on doctor changes
  - Long claims, payment delays, etc.
  - Consider filing workers comp vs. private U.S. Health Insurance
  - Workers comp covers you in event of long-term disability



# Steps to Take if Injured

**Immediately report injury to MSFC Health Center  
Bldg 4249 / 544-2390**

**Inform your supervisor of  
injury and any limitations  
imposed by your physician**

**Contact Environmental Health  
Office to arrange an Ergonomic  
Evaluation on your office space or  
for a quicker fix view the office  
set-up file provided.**

**Scott Pinkston/ 4-8370**

**To file a Worker's  
Compensation claim call Annete  
Loveday/ 4-2428 or Gertrude Conard 4-  
0981 forms CA-1, CA-2, CA-7, CA-10,  
CA-16 from US Dept. of Labor**

**Forms available at  
<http://forms.psc.gov/forms/DOL/dol.html>**



# Action

- Proper Office Set-up [Office Set Up.pdf](#)
- Symptom help [Pocket Ergonomist.hlp](#)
- Review information on any problems you are having
- Watch for any early warning symptoms
- Evaluate and modify office and home work environments
- Keep and use this information for future reference
- Understand legal and medical implications of injuries

**Windows PC  
only!**



# Ergonomics & Posture Awareness

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## Advantages

- Experience less fatigue
- Have less discomfort
- Avoid substantial injury & pain
- Reduce doctor visits
- Make you feel better
- Reduce your stress
- Save your money and tax money
- Helps morale

## Disadvantages

- Consumes some of your time
- Rearrange your work areas
- Purchase new equipment
- Causes your company or you to cover medical bills
- Watch symptoms continuously



# Full Version of This Presentation

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- Located in file named “(FULL VERSION) ERGONOMICS IN THE WORK-PLACE.PPT”
- Contains many more pictures and injury details
- Has extensive web research references