Preventing Carpal Tunnel & Other Work Related Injuries
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Department of Occupational Therapy

Objectives
At the end of this session, participants will be able to:

1. Identify physical and psychosocial factors that contribute to musculoskeletal injuries in the workplace.
2. Conduct a personal workstation ergonomic assessment.
3. Develop a personalized plan to prevent musculoskeletal injuries at work.

Musculoskeletal Disorder Overview
• Musculoskeletal Disorders Defined
• Prevalence

The Most Common Medical Conditions in the U.S.
1. Musculoskeletal Disorders
2. Emotional Disorders
3. Circulatory Disorders
4. Respiratory Disorders

American Association of Orthopedic Surgeons, 2011
Specifically Speaking

1. Chronic Pain
2. Arthritis
3. Neck Pain
4. Lower Back Pain
5. Low Back Pain Below Knee

Lost Work Days Due by Medical Condition

52.22% due to Back/Neck Pain and Chronic Joint Pain / Arthritis

Total Productivity Loss

Total Productivity Loss By Specific Musculoskeletal Condition
<table>
<thead>
<tr>
<th>Common Disorders</th>
<th>Etiology (aka Causes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Carpal Tunnel Syndrome</td>
<td>• Anatomy/Physiology/Genetics</td>
</tr>
<tr>
<td>• Lateral Epicondylitis</td>
<td>• Physical Exertion/Overuse</td>
</tr>
<tr>
<td>• Ulnar Neuropathy</td>
<td>• Psychological Stress</td>
</tr>
<tr>
<td>• Rotator Cuff Pathologies</td>
<td>• Nutrition</td>
</tr>
<tr>
<td>• Shoulder, Neck &amp; Back Pain</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical Risk Factors</th>
<th>Risk Factors for Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>are present in every job... regardless of perceived physicality...</td>
<td>• F - Forceful</td>
</tr>
<tr>
<td></td>
<td>• A – Awkward</td>
</tr>
<tr>
<td></td>
<td>• V - Vibratory</td>
</tr>
<tr>
<td></td>
<td>• R – Repetitive</td>
</tr>
<tr>
<td></td>
<td>• S - Sustained</td>
</tr>
</tbody>
</table>

Especially when motions are outside of the neutral zone

Jacob et al., 2011; Thompson, 2008
### Additional Environmental Considerations

- Noise
- Lighting
- Contact Stress

### Ergonomics

“Ergonomics is the study of humans, objects, or machines, and the interactions among them”

(Maltchev, 2012, p. 304).

### Customizing Workspaces & Work Routines

- [http://www.youtube.com/watch?v=pi6bRtTtGeY](http://www.youtube.com/watch?v=pi6bRtTtGeY)

### PREVENTION
Workstation Analysis – e-Tools

- Workstation Analysis e-Tool
- Ergonomic Checklist

Lifting

- http://www.youtube.com/watch?v=J9KgJWkVcIE

“Take Aways”
- Maintain a straight spine
- Wide stance
- Keep item close to the body
- For awkward items – Add handles or ask for help
- Maintain the neutral zone

Computer Workstation Assessment

- Ergonomics case study (awesome) - Desk
  - http://www.youtube.com/watch?v=8cbuOS5-9jnM

PERCEIVED WORKPLACE STRESSORS

What are a few that are present in your workplace?
**Stressors**

• Bio-ecological

• Psychointraphysical

• Social

Seaward, 2006

**Americans & Stress**

(American Psychological Association, 2009)

<table>
<thead>
<tr>
<th>Stressors</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Money</td>
<td>• Physical Symptoms</td>
</tr>
<tr>
<td>• Work</td>
<td>• Psychological Symptoms</td>
</tr>
<tr>
<td>• Rent/Mortgage</td>
<td>• Sleep Disturbance</td>
</tr>
<tr>
<td>• Balancing Work/Family/Personal Time</td>
<td></td>
</tr>
</tbody>
</table>

**Mind-Body Connection**

**PSYCHOPHYSIOLOGY**

Of Stress

Seaward, 2006
## Disease & Stress

80% of Dr. visits are the result of stress.
75-85% of health-related problems are either precipitated or aggravated by stress.

Seaward, 2006

<table>
<thead>
<tr>
<th><strong>Nervous System</strong></th>
<th><strong>Immune System</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronchial asthma</td>
<td>The common cold</td>
</tr>
<tr>
<td>Tension &amp; migraine headaches</td>
<td>Influenza</td>
</tr>
<tr>
<td>Temporomandibular joint dysfunction</td>
<td>Allergies</td>
</tr>
<tr>
<td>Irritable bowel syndrome</td>
<td>Rheumatoid Arthritis</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>Ulcers &amp; colitis</td>
</tr>
<tr>
<td></td>
<td>Cancer</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Musculoskeletal System</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disorders</td>
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</tbody>
</table>

## Prevention

- **Primary Prevention**
  - “The implementation of ergonomics solutions involving participation of the worker and other workplace staff, such as the supervisor.”
- **Secondary Prevention**
  - “Intervention that is undertaken after individuals have experienced a condition of concern”.
- **Tertiary Prevention**
  - “Intervention designed for individuals with chronically disabling musculoskeletal disorders with the goal of achieving maximal functional capacity”.

Domanski et al., 2008

## Primary Prevention Areas

- **Ergonomics**
- **Work and Environmental Design**
  - Work load and work pace
  - Working hours
  - Interpersonal relationships
  - Social environment
- **Organization and Management Development**
  - Participation, role and control
  - Job design
  - Job descriptions
  - Culture
  - Career development
  - Communication
  - Clear organizational structure and practices

Domanski et al., 2008
### Secondary Prevention Areas

- **Worker Education and Training**
  - Ergonomics
  - Improve equipment used and physical working conditions
  - Safety
  - Stress management
  - Time management
  - Build managers understanding of work stress and their skills to deal with it effectively
  - Job specific training with effective supervision and guidance
  - Ensure employees have or develop the appropriate knowledge and abilities to perform their jobs effectively
  - Ensure employees know what exactly their job is: job descriptions

  Domanski et al., 2008

### Healthy Methods of Managing Stress

- Differentiate between true stressors & an automatic reaction.
- Avoid controllable stressors
- Plan
- Say “No”
- Prioritize
- Exercise
- Sleep Well

National Institute of Health, 2007

### Tertiary Prevention Areas

- **Exercise!**
  - At work
  - At home

- **Current Research**

  Tweito & Eriksen (2008); Kuopala (2008)

### Tertiary Prevention Areas

- Developing more sensitive and responsive management systems and enhanced occupational health provision.

  Domanski et al., 2008
Adults need at least...
(Centers for Disease Control, 2008)

- 2 hours & 30 minutes of moderate-intensity aerobic activity/week
  AND
- Muscle-strengthening Activities on 2 or more days / week all major muscle groups

- 1 hour & 15 minutes of vigorous-intensity aerobic activity/week
  AND
- Muscle-strengthening activities on 2 or more days / week that work all major muscle groups

- An equivalent mix of moderate and vigorous-intensity aerobic activity
  AND
- Muscle-strengthening activities on two or more days / week that work all major muscle groups

Cardiovascular Exercise

- 30 min. 5x/week
  – moderate- to vigorous-intensity physical activity
  – Break into 10 min. chunks!
(Centers for Disease Control, 2008; Thompson, 2008)

Odds & Ends

- Visual assessments
- Promote hydration
- Promote breaks
- Sleep Quality & Position

I CANNOT AND SHOULD NOT BE CURED OF MY STRESS, BUT MERELY TAUGHT TO ENJOY IT...

HANS SEYLE
Personalize Your Plan

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References


Thank you!