Preventing Carpal Tunnel & Other Work Related Injuries
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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 Surgery, 2011
Specifically Speaking

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

American Association of Orthopedic Surgery, 2011

Lost Work Days Due by Medical Condition

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

American Association of Orthopedic Surgery, 2011
Total Productivity Loss

American Association of Orthopedic Surgery, 2011

Graph 1.3.3: Total Productivity Loss Due to Select Medical Conditions [1,2] for Persons Aged 18 and Over, United States 2008

[1] Reported ‘yes’ to at least one of the 23 medical conditions (70% of the weighted population). Multiple conditions resulting in lost work or bed days possible
[2] Symptoms lasting 3 months or longer OR 2 or more physician visits

Total Productivity Loss By Specific Musculoskeletal Condition

American Association of Orthopedic Surgery, 2011

Graph 1.3.4: Total Productivity Loss Due to Select Musculoskeletal Conditions [1,2] for Persons Aged 18 and Over, United States 2008

[1] Reported ‘yes’ to at least one of the 23 medical conditions (70% of the weighted population). Multiple conditions resulting in lost work or bed days possible
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Common Disorders

• Carpal Tunnel Syndrome
• Lateral Epicondylitis
• Ulnar Neuropathy
• Rotator Cuff Pathologies
• Shoulder, Neck & Back Pain

Etiology (aka Causes)

• Anatomy/Physiology/Genetics
• Physical Exertion/Overuse
• Psychological Stress
• Nutrition

Jacoby et al., 2011; Thompson, 2008
Physical Risk Factors

are present in every job... regardless of perceived physicality....

Risk Factors for Injury

• Motions & tasks that are....
  • F - Forceful
  • A – Awkward
  • V - Vibratory
  • R – Repetitive
  • S - Sustained

Especially when motions are outside of the neutral zone

Jacoby et al., 2011
Additional Environmental Considerations

- Noise
- Lighting
- Contact Stress

PREVENTION
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)
Workstation Analysis – e-Tools

• Workstation Analysis e-Tool

• Ergonomic Checklist

Computer Workstation Assessment

• Ergonomics case study (awesome) - Desk
  – http://www.youtube.com/watch?v=8cbuO5-9jnM
Lifting

• [http://www.youtube.com/watch?feature=player_embedded&v=j9KgJWkVcIE](http://www.youtube.com/watch?feature=player_embedded&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

PERCEIVED WORKPLACE STRESSORS

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

• Bio-ecological

• Psychointrapersonal***

• Social

Seaward, 2006

Americans & Stress
(American Psychological Association, 2009)

<table>
<thead>
<tr>
<th>Stressors</th>
<th>Effects</th>
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<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>
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</tbody>
</table>
PSYCHOPHYSIOLOGY

Of Stress

Mind-Body Connection

**Systems**
- Nervous
  - CNS
  - PNS
    - ANS
- Endocrine
- Immune
- Musculoskeletal

**System Interplay**

Cognitive Perception of Stimuli

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

• Nervous System
  – Bronchial asthma
  – Tension & migraine headaches
  – Temporomandibular joint dysfunction
  – Irritable bowl syndrome
  – Coronary heart disease

• Immune System
  – The common cold
  – Influenza
  – Allergies
  – Rheumatoid Arthritis
  – Ulcers & colitis
  – Cancer

• Musculoskeletal System
  – Disorders

At Work

REDUCING STRESS
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

Domanski et al., 2008; Tveito & Eriksen (2008); Kuopalla (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)

<table>
<thead>
<tr>
<th>• 2 hours &amp; 30 minutes of moderate-intensity aerobic activity/week</th>
<th>• 1 hour &amp; 15 minutes of vigorous-intensity aerobic activity/week</th>
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<tbody>
<tr>
<td>AND</td>
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<td>• Muscle-Strengthening Activities on 2 or more days/week all major muscle groups</td>
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<td>• An equivalent mix of moderate and vigorous-intensity aerobic activity</td>
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## Cardiovascular Exercise

• 30 min. 5x/week

  – moderate- to vigorous-intensity physical activity

  – Break into 10 min. chunks!

(Centers for Disease Control, 2008; Thompson, 2008)
I CANNOT AND SHOULD NOT BE CURED OF MY STRESS, BUT MERELY TAUGHT TO ENJOY IT...

HANS SEYLE

Odds & Ends

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

Image Source: hockeywriters.com
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References


Thank you!