What is Ergonomics?

Ergonomics

- Optimizing human performance through favorable equipment design and an efficient environment to safely minimize effort.
- Ergonomic designs and practices are used to eliminate or minimize the risk of Musculoskeletal Disorders (MSDs), among other reasons.
What Ergonomics Involves

PEOPLE

Work Environment

tools & equipment

Job Task

What are Musculoskeletal Disorders (MSDs)?

- MSDs are chronic disorders involving muscles, tendons, and nerves
- MSDs can be caused or aggravated by various risk factors:
  - Repetitive motion
  - Forceful exertion
  - Awkward, static postures
  - Environmental factors

Examples of MSDs

- Carpal Tunnel Syndrome
- Tendonitis
- Tennis Elbow (Epicondylitis)
- Muscle / tendon / ligament sprain
- Rotator Cuff injury
- Tension Neck Syndrome
Anatomy

- The back is made up of 5 primary sections, which are built out of vertebrae.
  - These bony vertebrae play several roles:
    - Keeps your head where it is supposed to be
    - Attachment points for ligaments and tendons
    - Protective cage
  - We always want to keep the natural lumbar curve of our back.
  - There’s a reason we were built this way.

Discs

- Discs are soft and squishy with an inner jelly-like substance that acts as a shock absorber for the spine.
  - Designed to cope with pressure straight up and down.
  - Problems arise when we put uneven pressure on them by twisting or lifting side to side.

Lifting

Think of your back as a lever. With the fulcrum in the center of the lever, how many pounds of force would it take to lift a 10-pound object?
Will it take more or less force to lift the same 10-pound object with the fulcrum shifted to one side?

Aging workforce

Baby Boomers

- Born 1946 – 1964
- 76 million boomers in the U.S. – 29% of the population
- First baby boomers reached standard retirement age of 65 in 2011
- U.S. Seniors are employed at the highest rates in 55 years
  - Almost 19% of people 65 or older are working at least part-time in 2017
  - Retirement may not be financially viable yet (e.g. lack of savings, or unavailability of full Social Security benefits)
Time Experienced Workers are Valuable

- Experience
- Stability
- Dedication / Pride
- Desire to work

Ergonomic challenges as we age

- Muscle loss = reduced strength
- Arthritis
- Longer recovery time
- Decreased water content of tendons, cartilage, and connective tissue
- Reduced cushioning, elasticity, and flexibility, as well as increased susceptibility to stresses

Higher Susceptibility to Ergonomic Injuries

- May not understand limits
- Brain and body have a disconnect
- Still may be strong for their age, but can’t do the same tasks as they did years ago
- NOT less capable, just capable in different ways
Ergonomic Injuries by Age in Metro District

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Number of Incidents</th>
<th>Average cost per Ergonomic Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>55+</td>
<td>32 (57%)</td>
<td>$12,927</td>
</tr>
<tr>
<td>40-54</td>
<td>19 (34%)</td>
<td>$3,795</td>
</tr>
<tr>
<td>Under 40</td>
<td>5 (9%)</td>
<td>$3,034</td>
</tr>
</tbody>
</table>

*Data is taken from the past five years. There were 56 ergonomic injuries total.

What can you Control?

Employee health factors managers CANNOT control
- Diet
- Exercise
- Genetics
- Activities/Ergonomic factors outside of work
Employee factors managers CAN control:
- Physical environments in workplace
- Tools/equipment that employees use
- Tasks that employees perform
- Training that employees receive
- Understanding their potential denial of limitations (e.g. “always have done it this way, it’s fine”)
- Acknowledge staff who are being safe

New or younger workforce:

Challenges:
- Getting over stigma of how it looks to do things safely/correctly
- May not want to look unable/helpless
- Getting into safe habits from the get-go: not falling into bad patterns
- Feel Invincible
- Disconnect between the Science and the Psychology (people’s attitudes, culture)
Newer Workers Have Value

- New, fresh eyes/ideas
- Perhaps stronger, more agile, resilient bodies
- Millennials = more concerned with safety than other generations
  - Taught to value safety
  - More exposure to serious crises
- May expect safer conditions (past vs. present)

Custodial, Maintenance, & Grounds Staff

Ergonomic Challenges

- Lifting
  - Trash cans
  - Mop buckets
  - Equipment and tools
- Reaching
  - Dusting/Cleaning
  - Vacuuming

- Reaching
  - Dusting/Cleaning
  - Vacuuming
Ergonomic Challenges (cont.)

- Pushing and Pulling
  - Shoveling snow
  - Moving furniture/Equipment
  - Vacuuming

- Bending
  - Sweeping
  - Mopping
  - Picking up low items

Most Common Ergonomic Injuries - Custodial/Maintenance

- Strains
- Sprains
- Back Injury (~46% of injuries for this work group)
  - Metro district: 1% of custodial injuries are back-related
  - $16,396 / back-related injury

ROI - Ergonomic Awareness

- Lower workers compensation costs
- Boost productivity and efficiency
- Improves quality of work
- Better safety culture, improved morale
- Can focus on workplace improvements instead of reacting to injury
Costs of Ergonomic Injuries

Direct Costs
- Worker’s compensation payments
- Medical care expenses
- Legal expenses

Indirect Costs
- Training replacement employees
- Accident investigation
- Administration/overhead costs
- Lower productivity
- Lower employee morale, higher absenteeism

OSHA’s “Safety Pays” Program
What can you set up internally?

- Review of injuries; understand the issues
- Communication with staff on ergonomic challenges in their department
- Avoid complacency!
- Toolbox trainings
- Checklists/internal ergonomic assessments
- Onboarding - which job categories should require Ergonomics training based on job duties?
- Does your facility have an Ergonomics program?

Questions??

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