Stretching and Cumulative Trauma Prevention

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What is Cumulative Trauma?

Sound familiar????

- Employee tears a knee meniscus rising from a squat position?
- CTS develops in OH Linemen or plant mechanics for no apparent cause?
- A Rotator cuff tears when pulling a wrench?
- A lumbar disc herniates while picking up a wrench from the floor?
Cumulative Trauma is a slow wear and tear process:

- No symptoms initially
- Poor Working Habits cause the damage.....
  Not merely doing physical work
- Belief systems of employees / management drive the behaviors that create the problem.
- CT damages muscles and joints
Strain and Sprain Prevention

- Utilize Good Bodymechanics
- Ergonomic Improvements
- MicroBreak Stretching
- Strengthening / Rehabilitation
- Self Care
Stretching.......Effective or Ineffective in Preventing Injury??
Problems with research cited in articles claiming stretching has no significant effect in injury prevention:

- Sports injury is not like industrial injury
- Lab research not transferable to etiology of industrial injury
- Short term versus long term effects of stretching
- Stretch alone not as effective as combined approach
- Double blind studies impossible
What do we Know?

- **Fatigued Muscles**
  - Become hypertonic (spasm)
  - reduced bloodflow
  - may cause pain
  - Decreased work capacity

- **Muscle Degeneration**
  - Diminished capacity to regenerate
  - weaken (structurally and physiologically)
  - Scar tissue adhesions
Loss of Flexibility associated with risk for cumulative trauma injury

Studies support use of stretching for healing / rehabilitation of joint and muscle

- Reduce spasm
- Increase blood flow
- Reduce microscopic adhesions
- Reduce pain levels
What else do we Know?

- Muscle spasm causes pain
- Scar tissue adhesions create pain
  - Myofascial trigger points
- Scar tissue adhesions alter joint mobility
  - Speeds joint degeneration / arthritis
- Muscle spasm weakens muscle
- Muscle spasm alters joint stability
Stretching Accomplishes……?

- Reduces scar tissue adhesions
- Increases blood flow
- Normalizes ROM
- Promotes healing
- Reduces pain
- Improves strength and work capacity
What do employees believe about Stretching?

- It’s probably good, but I don’t need to........
- Physical work causes the problem anyway
- I’m getting older....... 
- It’s not that bad....... 
- As long as it doesn’t get worse.......
How do you get people to stretch as a part of their workday?

- They have to decide they want to
  - Must understand Cumulative trauma
  - Must identify it is happening to them
  - Must recognize the consequences

- Must provide a process to stretch
  - Daily in morning / Job briefing
  - MicroBreak Stretching during the day
    - Task / Body part specific

- Must reinforce all concepts regularly
Cumulative Trauma of Muscle
Is it Happening to You?

- Are there symptoms from that body part?
- Is there loss of Range of Motion (ROM)?
- Is there discomfort or pain with ROM?
What are the Consequences?

- Loss of Quality of life
  - Pain and discomfort
  - Increased risk of acute and chronic injuries and conditions:
    - Carpal Tunnel Syndrome
    - Rotator cuff tears
    - Herniated discs
    - Meniscus tears
    - Degenerative arthritis
Does stretching help when incorporated as part of a comprehensive program?

6 WTE Plants with approx 550 employees

- Strains / Sprains were the leading type of injury representing 34% of all injuries
- Significant costs including in workers’ compensation of $168K and over $100K per year in non-occupational injuries
- Most injuries occur to the BACK followed by the SHOULDER, KNEE and NECK
- Most injuries occur while PUSHING/PULLING or LIFTING
We found 84% of employees had significant loss of ROM

- A loss of ROM is a sign of cumulative trauma
- Regular stretching and proper body mechanics will help improve and/or maintain normal ROM
- Pre and post ROM measurements to evaluate program effectiveness
- Measured the neck, shoulder, hands, back and knees
- 18 – 24% of employees were working with pain at moderate to severe levels on a daily basis depending on the plant
- 26 to 60% of employees were working with pain at moderate to severe levels several times a week or more often
- Working in pain affects productivity, morale, and turnover rates
9 Months Later:

- Reduction in strain and sprain injuries:
  - Zero OSHA recordable injuries for 5 of 6 facilities
  - Zero workers’ compensation cases for 4 of 6 facilities
  - Reduction in workers’ compensation costs from $12,700 to $474 per case

- ROM measurements
  - An average of 71% of measurements met improvement targets
  - Improved symptomatology
Questions?