

# Job And Ergonomic Risk Analysis



# Objectives

- Define job analysis and ergonomic risk analysis
- Understand the potential uses of job and ergonomic analysis
- Realize the benefits of job and / or ergonomic analysis
- Introduce how they are performed
- Identify OSHA's risk factors for musculoskeletal disorders
- Explain the types of workplace modifications / controls used to reduce the risk of musculoskeletal disorders

# Why are there more Musculoskeletal Disorders?

- Increased Workloads
- Poor Physical Fitness Levels
- Older Work Force
- More Physical Fatigue
- More Mental Fatigue / Stress
- Static Work and Home Postures
- More Knowledge about MSD's

# Job analysis

- Let's define it...really there are 2 parts

- *A systematic, objective process involving observation and objective measurements, designed to collect quantitative and qualitative information regarding a specific position / job class.*

- *A written report usually follows, which details particular job tasks, the physical demands associated with those tasks, the relative importance of job tasks (essential vs. marginal functions) and the overall physical demand level associated with job.*

- *The written report also details job specifics such as hours worked, shift(s) worked, overtime, productivity quotas, tools and equipment used on the job, personal protective equipment used on the job, and any potentially adverse environmental factors that may be present*

# How is a job analysis performed?

- **Interview/verbal:** case manager, department supervisor and/or manager, incumbent employees. Establish the referral question.
- **Direct observation is the focus**, and may include video recordings and digital photos of employees performing the work.
- **Objective measurements** of the physical demands corresponding to essential functions, are obtained.

# Collect quantitative measures related to performance of job specific tasks...

- JAMAR dynamometer
- Pinch gauge
- Video camera
- Digital still camera
- Goniometer



- Scale
- Force gauge
- Tape Measure
- Stopwatch
- Goniometer





# Advantages of direct observation

- First-hand knowledge and information
- Eliminate sources of error
- See and experience work environment, culture, tools and equipment
- May be necessary to support testimony
- Disadvantages
  - Altered behavior when being observed
  - Time consuming - but usually 'one and done'

# Purpose of job analysis

1. Establish essential functions: the reason why the position exists, for example
  - Installs and / or repairs plumbing fixtures such toilets, sinks, , showers, faucets, drains, and hot and cold water lines, repairing or replacing piping, hardware and other components (as needed) to complete said repairs.
  - “An essential function is what the completed task is, not how the task is completed.”\*
2. Establishes physical demands required to perform the position:
  - Lifting, 2-hand: 53 lbs, 10” to 54”, up to 4x per day, occasionally.
  - Carrying, 2 hands: 53 lbs at waist level, 20 ft, occasionally.
  - Climbing: Up / down 9 stairs, including 2-hand carry of 53#
  - Pushing, 2 hand: 21 lbs (force) for up to 300 ft with handle @ 32” height, occasionally.

\*Roy Matheson and Associates; *Post-Offer, Pre-Placement Testing* seminar materials, February, 2008.

# Other physical demands

- Resistive tolerances
  - 1-hand lifting
  - 1-hand carrying
  - Shoulder carry
  - Gripping
- Non-resistive tolerances
  - Sitting
  - Dynamic standing
  - Squatting
  - Kneeling
  - Reaching



# Purpose of job analysis cont...

## 3. Design post-offer, pre-employment testing protocols. Example: replacing toilet

- Candidate will lift 53# from 10" to 53"
- Candidate will perform 2-hand carry of 53# for 20 ft, climb up / down nine 6" steps while carrying 53#, then return weight to starting position on floor.
- **If the employee is 'not capable', job offer is rescinded**, candidate never performs work for the employer.

# OSHA Return On Investment\*

- Direct Cost Of Injury: \$6,000
- Indirect Cost of Injury: \$7,000
- Company Net Profit Margin: 5%
- Sales needed to cover loss: \$260,000

For every \$1 spent, \$100 saved

\* Adapted from: <http://osha.gov/dcsp/smallbusiness/safetypays/estimator.html>?

## 4. Create functional job descriptions

- Includes essential and marginal functions
- Includes physical demands

# 5. Improved Injury Prevention Training Programs

- Customize training presentations
  - specific job tasks
  - positions encountered on the job
  - ergonomic “best practices” when performing certain tasks
- Design hands-on tasks to simulate on-the-job tasks that present ergonomic exposure
  - Improved “buy-in” from staff
  - Improved carryover to real-world, on the job tasks
- Increased credibility for trainers
- Demonstrates that the company has taken the initiative to improve safety and reduce injuries

# 6. Return to Work

- Physician is familiar with job demands vs. basing on employee or employer reports
- Transitional duty: Appropriate restrictions based on objective measures versus just arbitrary guessing or employee reports
- Treating therapist familiar with job demands and can begin to simulate functional work activity during treatment

# 7. FCE's and Work Conditioning

- Job specific FCE: allows therapist to accurately simulate job tasks = better determination of client's ability (or inability) to perform their job
- When work conditioning is necessary, allows the therapist to design a specific program that accurately simulates job tasks and physical demands
- Poor job description or asking the client can lead to problems, delaying return to work, extending TTD costs, **INCREASED CLAIM COST!**

# Who benefits?

- Insurance company
- Case manager
- Physician
- Rehab / therapy providers
- Employer
- Attorney
- Client
- Assists in establishing expectations and establishing a management plan for the IW, expediting RTW or case closure