SAND2018-8060C

OS1 Program and Ergonomics Integration

PRESENTED BY

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ENVIRONMENT SAFETY & HEALTH

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Ready to Work?

Hello my name is….

- Remember your first day?
- Where you the same person then as you are nov
  - YES – In what ways?
  - NO – What's changed?

You're In Charge…

- WORK SAFE, WORK SMART starts with YOU

- We all have habits…
  - Takes **21 days** to form a habit
  - Work on the **WHAT** and **WHEN** to be successful

- Are your habits (home and work) healthy and safe?

Are you taking care of you?

Sandia National Laboratory and Ergonomics

- FY2018 ESH Corporate Initiative on Overexertion
- Lab leadership and ESH identified overexertion as a leading cause of OSHA recordable injuries at Sandia
- Initiative is targeted on the reduction of overexertion injuries lab-wide by 50%
- Lab-wide communication campaign targeted on ergonomics and overexertion integration
- Develop a baseline of industrial ergonomic activities lab-wide
- Collaboration and partnership among:
  - Environment, Safety, and Health
  - Employee Health Services
  - All Members of the Workforce

Ergonomics

- Ergonomics considers the combination of the person, the equipment they use, the work processes, and the work environment
- A person's capabilities, physical attributes, and work habits must be recognized to improve ergonomic risk factors in the workplace
- Ergonomics applies to the reduction of overexertion activities in all types of work environments

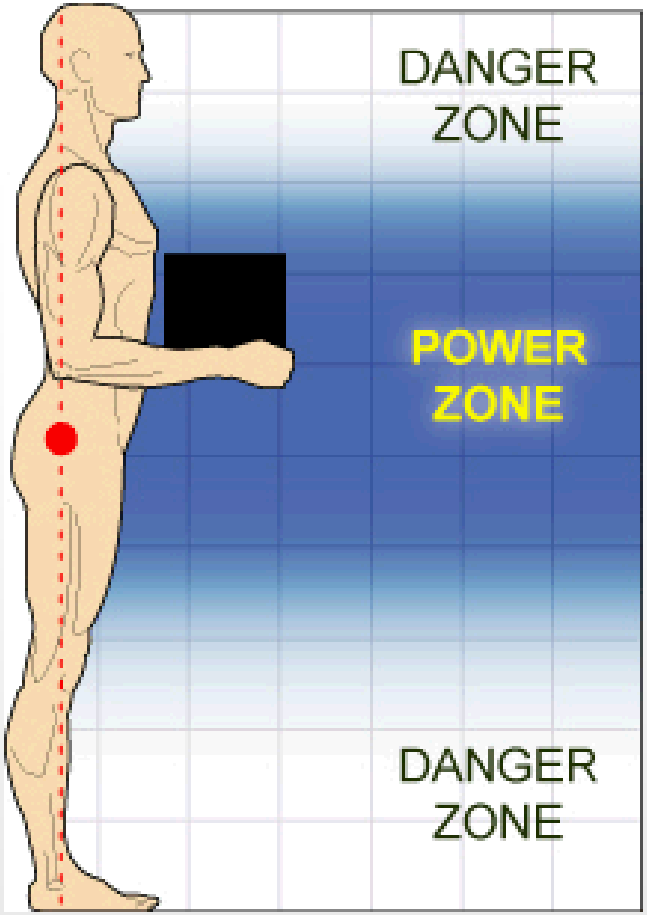
Integrated Ergonomics

Analyzing and integrating our work, our workforce, and our workplace

Power Zone

https://youtu.be/iBHqKn3EIwU

Power Zone



- Bend your elbow at a 90 degree angle (an L shaped position of the arm) and you are in your primary power zone
- This area up to the shoulders and down to the knees is acceptable
- The more time you work in your power zone the less stress and fatigue on your body
- Leverage is everything
- Increasing the distance between the hands and the body increases stress on, among others, the lower back

What is Overexertion?

"Working beyond your body's physical capabilities"

Overexertion Facts

- Overexertion can happen to anyone
- Overexertion injuries occur in both genders and all ages
- Ideal lifting conditions RARELY exist
- Overexertion injuries are not exclusive to lifting ONLY
- Increased general physical health, strength, and endurance can help minimize overexertion injuries but is NOT a guarantee

Types of Overexertion

High Force Demands

- Lifting
- Pushing
- Pulling
- Carrying
- Gripping
- Using tools

Awkward or Stationary Posture

- Bending
- Twisting
- Reaching
- Kneeling

Repetitive Movements or Actions

- Doing the same motion repeatedly without taking a few small breaks

Other Hazards

- Contact stress
- Vibration
- Working in hot or cold temperature environments

Prevention Methods

- **Slow Down**
  - Work at a steady pace, taking one task at a time
- **Know Your Limits**
  - Ask for help, or
  - Use aids to make the task easier
- **Maintain Good Posture**
  - Take the time to position your body properly when performing a task
- **Use Proper Techniques**
  - Training and/or safe work practices
- **Take Frequent Mini-Breaks**
  - Take short breaks throughout the day to allow your muscles to relax and recover

LIFT SMART

Size up the load

Move close to the load

Always bend your knees

Raise object with your legs

Turn by moving your feet

KNOW ERGO BOOST YOUR ERGO NO INJURIES

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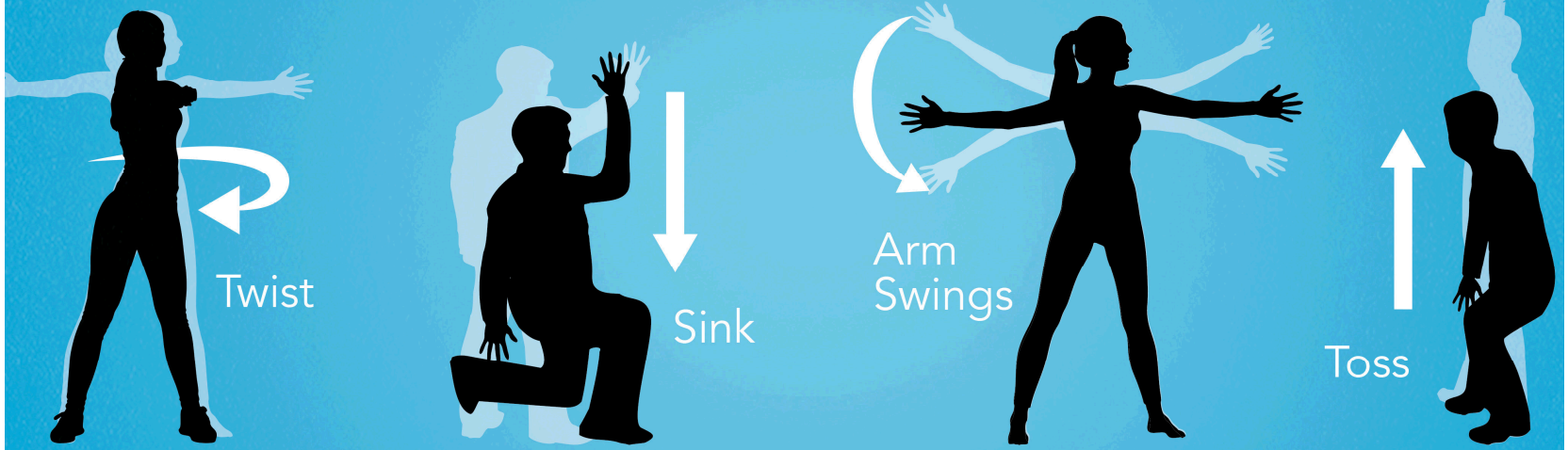
DYNAMIC STRETCH BREAKS



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Involvement is KEY

- Applied Ergonomics – workplace evaluations
- Report concerns and injuries
- Use the **BEST** equipment for the job
- Use the **BEST** techniques for the task
- Take time to **RE-ENERGIZE** and **RE-FOUCS**

"Think about your work and ways to improve it"

On-Site Evaluations

- The Ergonomic Program at Sandia National Laboratory evaluated tasks performed by Custodial Services in relation to the OS1 Program
- The following activities were evaluated:
  - OS1 Program and Training Demonstra
  - Light Duty Specialist
  - Vacuum Specialist
  - Restroom Specialist
  - Utility Specialist

"Cleaning process results in a safer, cleaner, healthier and happier working environment"

OS1 Program and Ergonomics

- OS1 Program incorporates lean methodologies with safety and environmental practices as a primary concern
- The concept of team cleaning is key to partner and work together to achieve a common goal
- Equipment and tools
  - Designed with easier functionality
  - Reduce ergonomic stress on the body
  - Engineering focus and standardization across all functions
  - Distribution kits are used daily with specific tools and chemicals for each function
  - Color coding is used to identify equipment, utensils, and cleaning products used by each function

OSI Program and Ergonomics

- Training is consistent and easy to apply at all levels of application
  - "BOOT CAMP" is a key element of the program
  - Education and training to a standard
  - Safely perform manual handling tasks and good body mechanics to safely use equipment
  - Trained and certified on specialized tasks
- "Cleaning Field Guide" re-enforces consistent techniques and processes
- Team leader involvement encourages cross-learning of best practices within all teams

Light Duty Specialist

	Item Handled	Frequency	Distance	Force/Weight
Lift:	Office wastebaskets, 2-10 gal., 44-45 gal. trash bag	Frequently	Knee – chest Waist – overhead	5 to 15 lbs.
Carry:	44-55 gal. trash bag	Occasionally	10 ft.	30 to 50 lbs.
Push/Pull:	44 gal. trash barrel on daily	Frequently	70,000 sq. ft.	5 to 20 lbs.

- Emptying waste baskets into a 44-gallon waste container on a dolly base that is pushed along the route
- Dusting of surface areas
- Wiping down all horizontal and commonly touched surfaces
- Detailing cleaning of sink area and drinking fountains
- Spot cleaning assigned vertical surfaces

Light Duty Specialist – Best Practices

- Distribution tray containing all needed supplies is readily available and eliminates carrying awkward or bulky items for the task
- Tipping technique for waste container minimizes overexertion for the back and shoulders from lifting vertically
- 36” Nifty Nabber tool eliminates stooping to pick-up floor level items
- Large rolling bins reduce stress on the body and minimize bending
- Separated glass by putting it in a smaller trash bag and placing it on the side of the 44-gal waste container for easier disposal

Vacuum Specialist

	Item Handled	Frequency	Distance	Force/Weight
Lift:	Back-pack vacuum	Limited	Knee – shoulder	12 lbs.
Carry:	Back-pack vacuum	Constantly	10,000 sq. ft.	12 lbs.
Push/Pull:	Vacuum wand	Constantly	4 ft.	12 lbs.

- Core areas vacuumed are:
  - Offices and Conference rooms
  - Computer rooms and Laboratories
  - Hallways and Stairwells
  - Lobby areas
- Additional areas include visible debris on furniture and spot vacuuming non-traffic areas as needed

Vacuum Specialist – Best Practices

- Backpack vacuum increases mobility and operations
- Edging technique for hallways minimizes back twisting
- Vacuum dance technique reduces ergonomic stress on the back
- Vacuum is stored on a ProTeam Vac-Station that is height adjustable to be positioned within the power zone
- ProTeam Vacuums are ergonomically designed:
  - Harness that has well-padded adjustable shoulder, waist, and chest straps
  - Articulated back pad that swivels with the operators torso

Restroom Specialist

	Item Handled	Frequency	Distance	Force/Weight
Lift:	Refill paper and cleaning supplies, mop bucket, wringer, mop, trash	Occasionally	Waist – shoulder Knee – shoulder	5 to 10 lbs. 10 to 20 lbs.
Carry:	Cleaners and supplies	Occasionally	> 5 ft.	Stocking cart
Push/Pull:	Janitor cart, 21 gal. trash bag	Occasionally	10,000 sq. ft.	Up to 20 lbs.

- Refill all dispensers and empty trash
- Dust restroom top to bottom and sweep floor
- Spray disinfectant and wipe sinks, mirrors, brightwork, doors, dispensers, and other fomites top to bottom
- Scrub, spray, and wipe toilets and urinals
- Disinfect floor

Restroom Specialist – Best Practices

- Equipment used keeps work within the power zone and eliminates trunk flexion by design
  - 36” Niffy Nabber tool
  - Toilet bowl cleaning tools are longer in length
- Pre-measured cleaning solutions eliminate the need to handle awkward or bulky containers for mixing solutions to clean floors or surfaces
- Tools and equipment are designed to be within reach on the utility cart

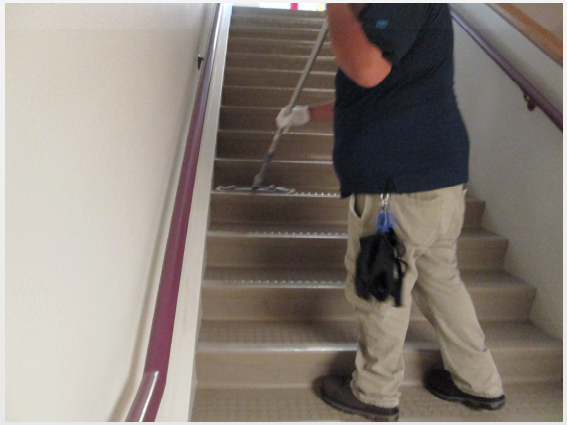
Utility Specialist

	Item Handled	Frequency	Distance	Force/Weight
Lift:	Large trash bags, vacuum, carpet cleaner and buffer, mop bucket	Frequently	Knee to above shoulder	40 to 50 lbs.
Carry:	Vacuum, cleaning supplies	Occasionally	Up to 10 ft.	Less than 20 lbs.
Push/Pull:	Trash barrel, floor buffer, vacuum, carpet extractor, vacuum wand	Frequently	10,000 sq. ft. 2,000 sq. ft.	30 to 50 lbs. 10 to 20 lbs.

- Wall to wall mopping of hallways and stairs
- Dusting high reach areas
- Detailed cleaning of stairwell surfaces, floors and carpets, lobbies, and elevator tracks
- Additional tasks include restocking and cleaning storage areas, and operating powered floor cleaners and burnishers

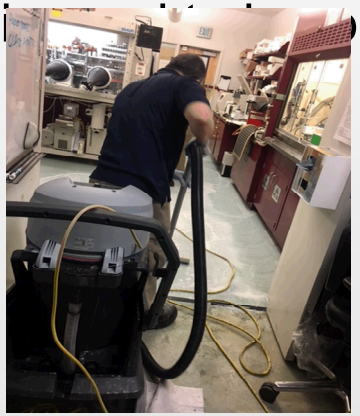
Utility Specialist – Best Practices

- Point-of-use hose to fill cleaning buckets eliminates lifting the bucket from the sink after filling (~25 lbs.)
- Working from a fixed point below the stairs being cleaned allows for tool handling with an upright neutral back posture
- Flat mop has a telescoping handle that can be adjusted for various heights
- Flat head mop is far lighter vs a string mop, much less force is required to push the flat mop reducing muscle fatigue
- Easy collapse mop head by push button and locking technique by pushing down in a fixed position eliminates trunk flexion


Utility Specialist – Best Practices

- Dynamic warm-ups performed before and during the activity
- Use of a powered floor cleaner reduces manual handling with a mop
- Rotating tasks and team work throughout the work shift helps to break up work and reduce physical body movements
- Pre-work safety reviews and work area inspections identify areas of concern
- Vacuum used is designed to reduce force on the body and breaks down in pieces to reduce the weight of it during travel and draining of fluids
- [illegible] tools and needed supplies readily

Back into the Power Zone

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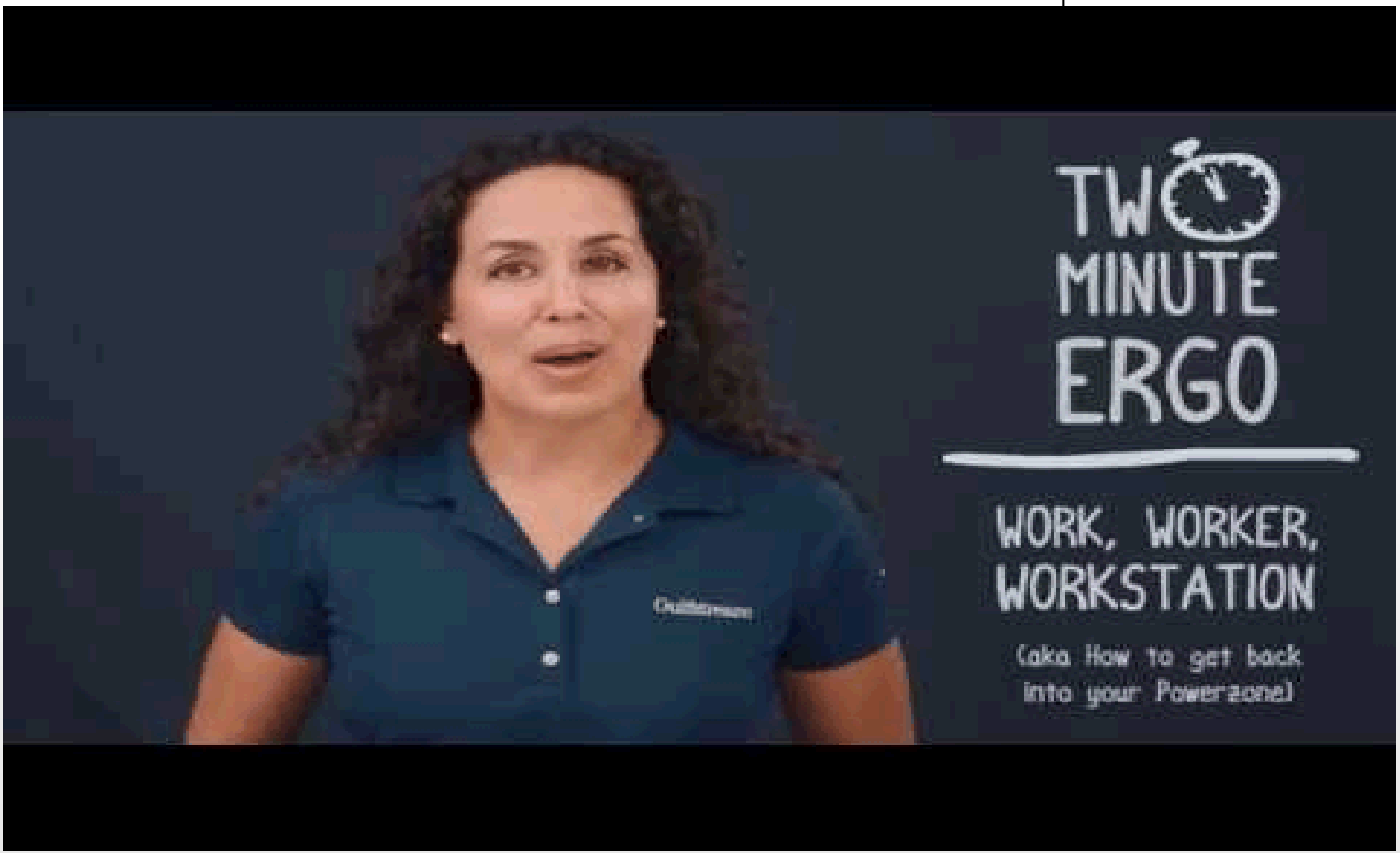

Questions

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