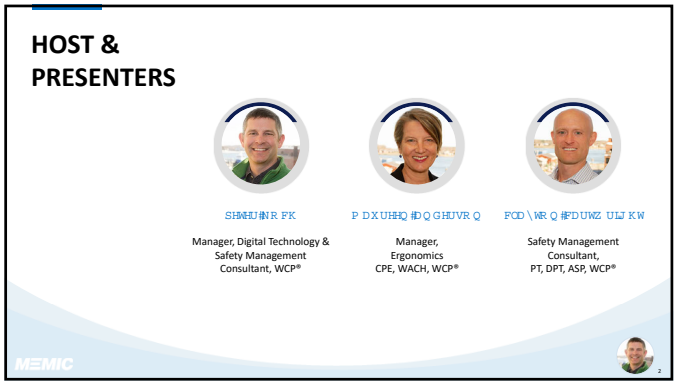
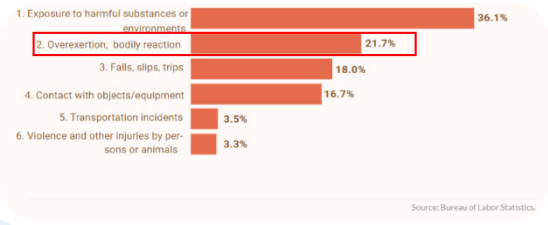
MEMIC
STRATEGIES FOR SAFE LIFTING & THE FUTURE OF MANUAL MATERIAL HANDLING


HOST &
PRESENTERS
Manager, Digital Technology & Safety Management Consultant, WCP®
Manager, Ergonomics CPE, WACH, WCP®
Safety Management Consultant, PT, DPT, ASP, WCP®
MEMIC

MEMIC
CLAYTON CARTWRIGHT
SAFETY MANAGEMENT CONSULTANT

TOP WORK-RELATED INJURY CAUSES IN 2020

Resulting in days away from work



MEMIC

Graphics from: https://injuryfacts.nsc.org/work/work-overview/top-work-related-injury-causes/

ERGONOMIC RISK FACTORS

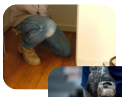
Primary

Posture

Force

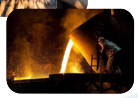
Frequency

Secondary



Contact Stress

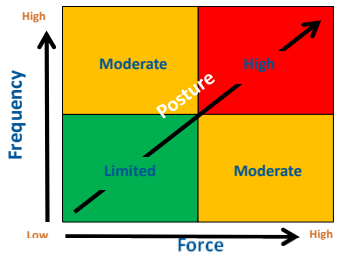
Vibration



Temperature Extremes

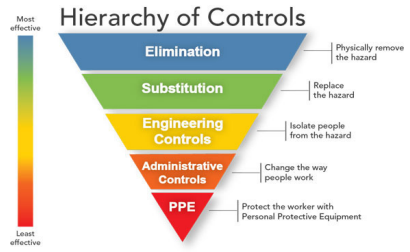
MEMIC

RISK POTENTIAL



MEMIC

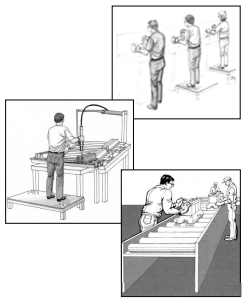
HIERARCHY OF CONTROLS



MEMIC

CONTROLS - ENGINEERING

- Workstation design
- Workflow design
- Tools
- Equipment
- Weight/Volume Reduction



MEMIC

CONTROLS - ADMINISTRATIVE

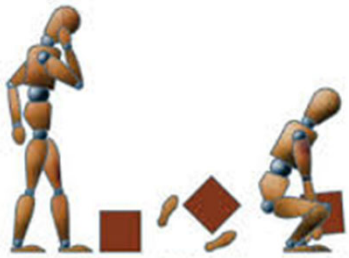
- Proper lift techniques (Body Mechanics)
- Team lifts (>50 lbs.)
- Stretch breaks
- Job rotations
- Rest breaks

MEMIC

MEMIC

THE BODY MECHANICS DISCUSSION

BASE OF SUPPORT

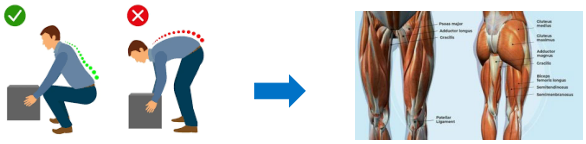


MEMIC

KEEP IT CLOSE

MEMIC

VERTICAL TORSO POSITION



MEMIC

13

AVOID ROTATIONAL MOVEMENTS AND BENDING

MEMIC

14

WHAT IS PROPRIOCEPTION?

- J.L. Taylor, in Encyclopedia of Neuroscience, 2009
- "Proprioception, or kinesthesia, is the sense that lets us perceive the location, movement, and action of parts of the body…enables us to judge limb movements and positions, force, heaviness, stiffness, and viscosity…."
- Think body awareness

MEMIC

15

MORE INFORMATION

1 **MEMIC.COM**

Patterns for Movement for the Industrial Athlete (Part 1 & 2)

2 **MEMIC.COM**

Motion is Lotion Episodes

3 **MEMIC.COM**

Movement May be Good, but Good Movement is Better

SAFETY EXPERTS PODCAST BY MEMIC

MEMIC

16

CONTROLS – PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Gloves
  - Grip
  - Thermal
  - Vibration
- Knee Pads
- Footwear
- Lifting Straps
- Braces

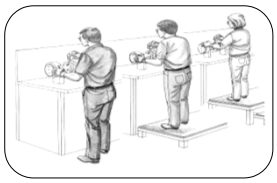
MEMIC

17

CC7

THE GOAL

Fit the job to the worker



Work smarter… NOT harder!

MEMIC

18

Slide 18

CC7 Include recap / key points on this slide
Collomy, Christine, 9/7/2023

QUESTION & ANSWERS
MEMIC

MEMIC
MAUREEN ANDERSON
MANAGER, ERGONOMICS

MEMIC
THE FUTURE OF MMH

IDENTIFYING RISK FACTORS

Calculators (Apps)	Wearables/Sensors	Computer Vision Software
NIOSH Lifting Guide	Smart Watch (Health Apps)	Tumeke
DUET	Smart Phone	Security Camera Footage
RULA	Other Wearables	
REBA		
Hand Strain		

MEMIC

COMPUTER VISION SOFTWARE - TUMEKE

Tumeke
- Lift-a-Cat Example
- Other examples that may apply to your company:
  - Training
  - Pallet loading
  - Packing crates
  - Assembly
  - Hospitality
  - Bakeries
  - Seafood processing
  - Manufacturing
  - Construction

MEMIC

EXAMPLE – LIFTING BAGS OF SALT

25

ADDRESSING RISK FACTORS

The Tried & True!

Carts
Pallet jacks
Tuggers
Pallet Levellers/Carousels
Vacuum Lifters
Block/Tackle
Task/Workspace Organization

The Future

Exoskeltons
Virtual & Augmented Reality
Automation/Robotics
Artificial Intelligence

MEMIC

26

EXOSKELETONS

- Wearable device that augments, enables, assists, and/or enhances motion, posture, or physical activity through mechanical interaction with the body.
- Muscle activity reductions 40-80%.
- Lots of interest, but lack of standards.

MEMIC

27

VIRTUAL REALITY/AUGMENTED REALITY

- Immerses the user into alternative or augmented reality
  - **Simulations**
    - Workstation layout
    - Emergencies
  - **Training**
    - Safety
    - Changes to operations
    - Service and maintenance
  - **Product Design**
    - Understanding impacts

MEMIC

AUTOMATION/ROBOTICS

- Eliminate risks through automation
- Most common in manufacturing
  - High volume, standard products
- Autonomous carts
  - Medical
  - Manufacturing

MEMIC

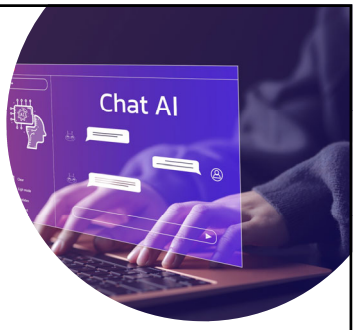
ARTIFICIAL INTELLIGENCE

- Warehousing
- Manufacturing
- Software and data to optimize systems
- Advanced data analytics
  - Predictive maintenance and repairs
  - Injuries
  - Quality

MEMIC

ISSUES OF AI

- Difficulty and understanding
- Opaqueness
- Adaptation
- Biases
- Reliability



MEMIC

QUESTION & ANSWERS

MEMIC

Thank you for attending!

To download this and other webinars:
https://www.memic.com/webinar-downloads

You'll receive a follow-up email which will include:

- Responses to all unanswered questions
- A link to this recording

MEMIC