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EASE

Ergonomic Assist Systems & Equipment

powered by MHI

Industrial Ergonomic Solutions

November 5, 2019 2:00 p.m. EDT

EASE
Ergonomic Assist Systems & Equipment
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Equipment Manufacturers/Suppliers

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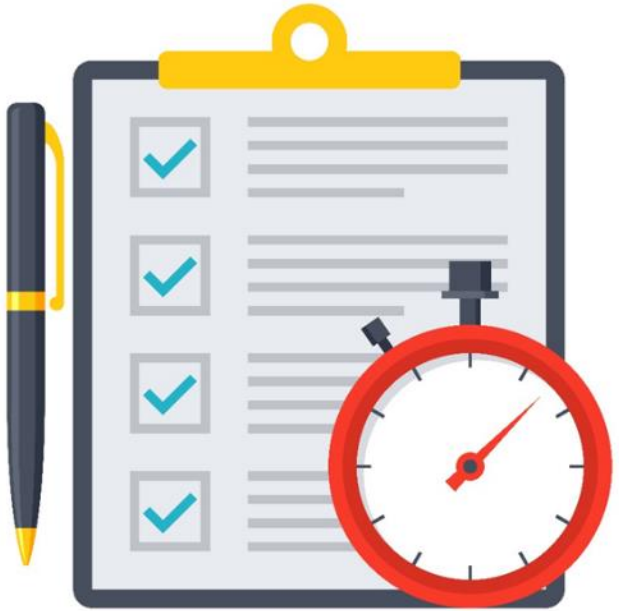
Agenda

- ❑ Why should I care about ergonomics?
- ❑ Designing an Ergonomic Workstation
- ❑ Implementing Ergonomic Solutions
- ❑ Question & Answer Session



Key Take-Aways

- Why ergonomics should be important to you as a business owner
- Common ergonomic challenges
- Designing an ergonomically-efficient workstation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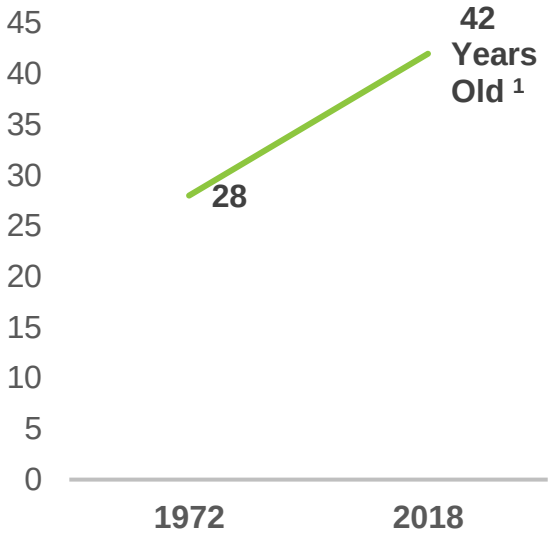
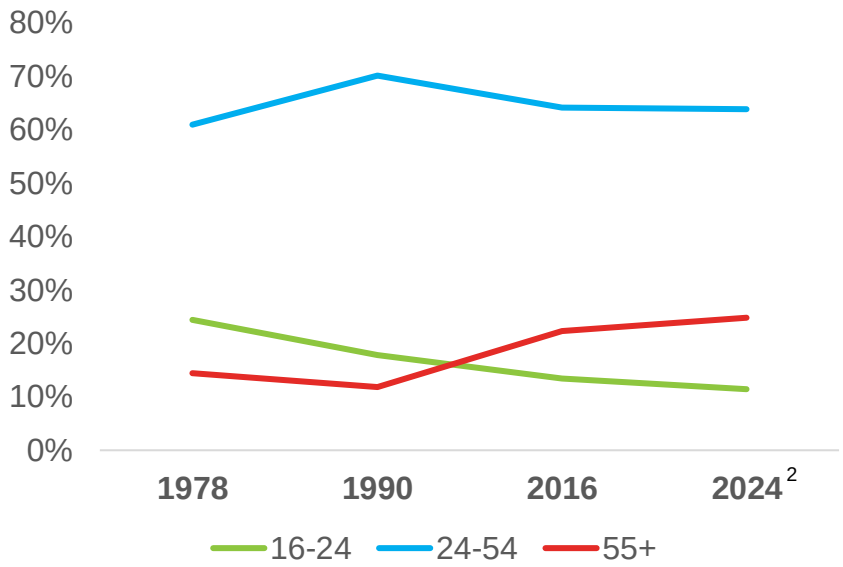
"We're looking for someone with the wisdom of a 50-year-old, the experience of a 40-year-old, the drive of a 30-year-old and the pay scale of a 20-year-old."

Why should I care about ergonomics?

The Workforce is Changing…





1. Source Ergonomics ASSE Feb 2009 Vol 2, No2 – Dr. Ronald Porter, PT, CEAS, Director, Back School Atlanta, What Works with the Aging Workforce
2. Bureau of Labor Statistics (2017). Older Workers, Retrieved August 23, 2019 from https://www.bls.gov/careeroutlook/2017/article/older-workers.htm

Why should I care about ergonomics?

Five Proven Benefits of a Strong Workplace Ergonomics Process

1. **Reduce costs.** Lowering ergonomic risk factors systematically prevents MSDs and leads to significant cost savings.
    - $1 out of every $3 in workers' compensation costs is attributable to MSDs.
    - indirect costs can be up to 20 times the direct cost of an injury.
2. **Improve productivity.** Designing a job to allow for good posture, less exertion, fewer motions, better heights and reaches improves workstation efficiency.

Why should I care about ergonomics?

3. **Improve quality.** Quality issues arise when the workers are frustrated and fatigued as a result of poor ergonomics.
4. **Improve employee engagement.** A company's commitment to health and safety can reduce turnover, decrease absenteeism, improve morale, and increase employee involvement.
5. **Create a better safety culture.** The cumulative effect of the ergonomic benefits fosters a stronger safety culture with a healthier and more dedicated workforce.

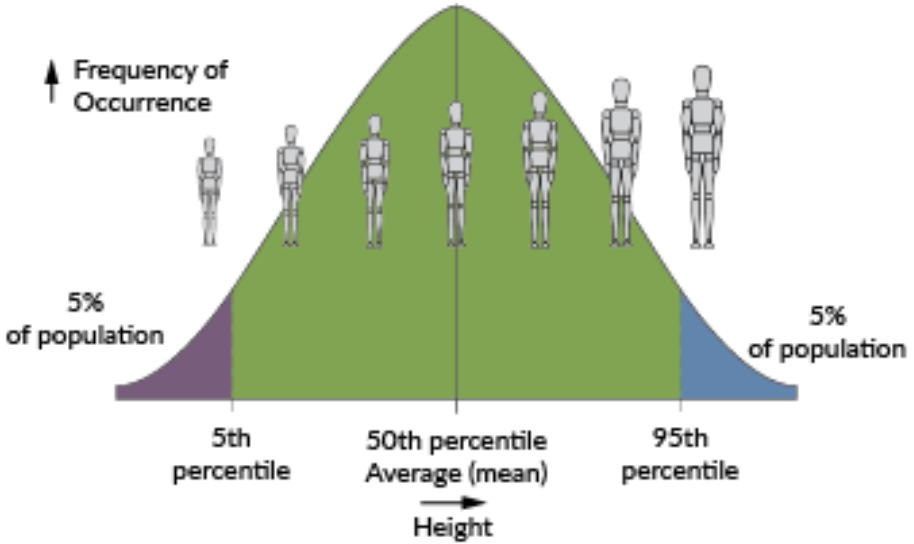
Designing a Workstation

Designing a Workstation

Design Strategies

- Design for average (public)
- Design for extreme (NBA)
- Design for adjustability (automobile)

5th to 95th percentile users
represents about 90% of operators



Workstation Planning Process

Applying basic ergonomic principles to workstation design

Getting Started: Define the Purpose

Designing a Workstation

- Determine Workflow
- Inventory Items
- Assign Priorities
- Plan the Layout
- Review Material Handling

Getting Started: Define the Purpose

What is the function of the workstation and what tasks need to be performed?

- Value-added services
- Quality control
- Consolidation
- Labeling
- Packing-dunnage/fill

Designing a Workstation

Step 1: Determine Workflow

- How are orders/items being received?
- What is the process once items are received?
- How are orders exiting the station?
- How will materials be replenished?

Designing a Workstation

Step 2: Inventory Items

Draft a list of all items necessary to perform tasks

- Tools
- Test and process equipment
- Components
- Product
- Reference materials

Designing a Workstation

Step 3: Assign Priorities

Decide how and where to place articles relative to the operator. This is accomplished by an analysis of tools, equipment and components as they integrate with the task.



Designing a Workstation

Step 3: Assign Priorities

The higher the priority, the closer the item should be to the operator based on the following:

- Frequency of use
- Sequence of use
- Accuracy required
- Duration of use
- Safety
- Force needed
- Convenience

Designing a Workstation

Step 4: Plan the Layout

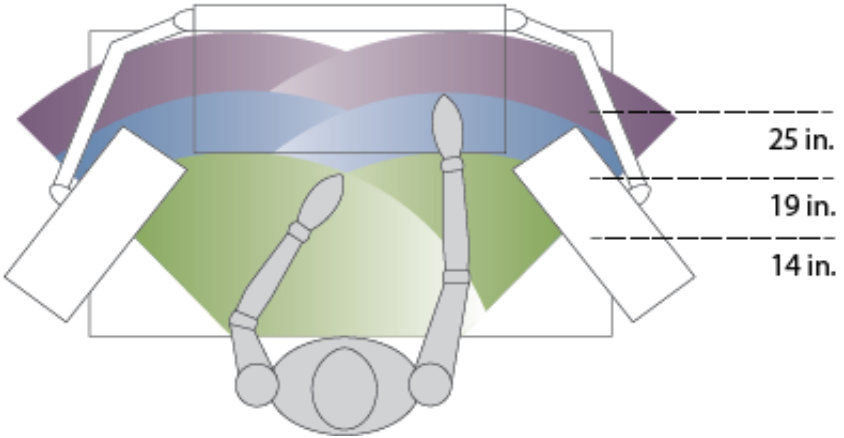
Assign all items on the workstation inventory list to the appropriate ergonomic reach zone

1st Zone: High use items, easiest access

2nd Zone: Medium use items, comfortable reach

3rd Zone: Low use items, reduction in efficiency

4th Zone: Storage



Designing a Workstation

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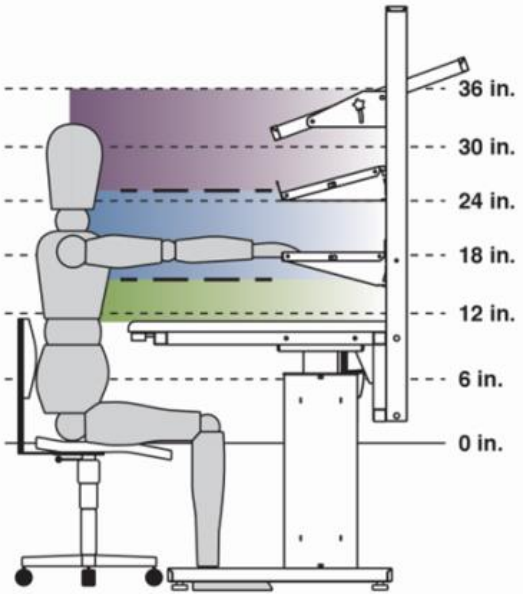
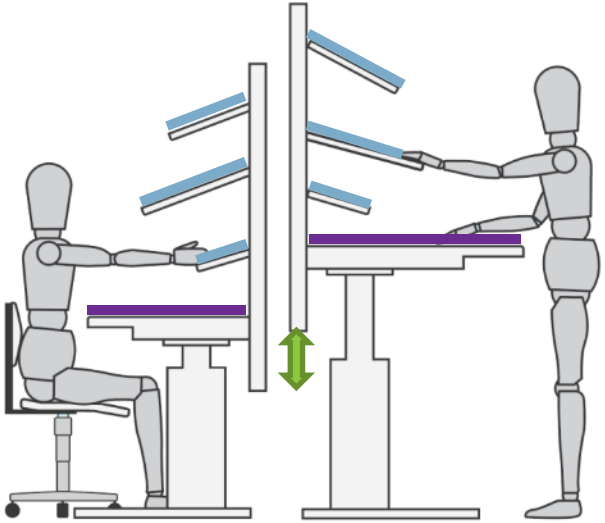


Designing a Workstation

Step 4: Plan the Layout

Establish Workstation Type

- Size - work surface large enough to support task required; small enough to minimize operator reach
- Capacity – include all items the unit will support including work surface and accessories
- Height Adjustability – consider single-shift, multiple shift, multiple operators



Designing a Workstation

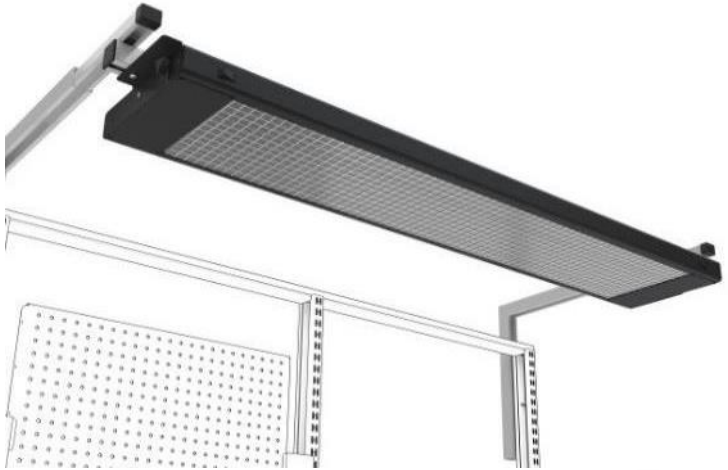
Step 4: Plan the Layout

Base Frame-Height Adjustability Considerations

	Electric	Hydraulic (Electric)	Crank (Mechanical/ Hydraulic)	Manual (Pin-Height Adjustment)
Simple adjustment	✓	✓		
Multi-shift/operator	✓	✓	✓	
No operator strain	✓	✓		
Low failure rate	✓			
Maintenance free	✓			✓
Electronically or mechanically balanced	✓			

Designing a Workstation

Step 4: Plan the Layout



Lighting Considerations

- Minimize glare
  - Parabolic filters
  - Window blinds
  - Monitor placement
- Avoid shadows
  - Overhead and task lighting where appropriate

Designing a Workstation

Step 4: Plan the Layout

Future Considerations
Is the workstation and its accessories modular in design and adaptable to the future needs of the business?

Designing a Workstation

Step 5: Review Material Handling

Eliminate bending and stooping wherever possible through use of appropriate containers and material handling vehicle

Moving materials in and out of the workstation

- Moving materials to perform the task
- Moving the product on which the task is being performed

Designing a Workstation

Step 5: Review Material Handling

Review use of carts, containers, conveyors, and ball transfers

- Conveyor routing for best material movement
- Ease of loading/unloading from conveyors (height)

Material handling containers and tote sizes

- Relationship to quantities of material for the task, and weight, to eliminate heavy lifting

Designing a Workstation

Step 5: Review Material Handling

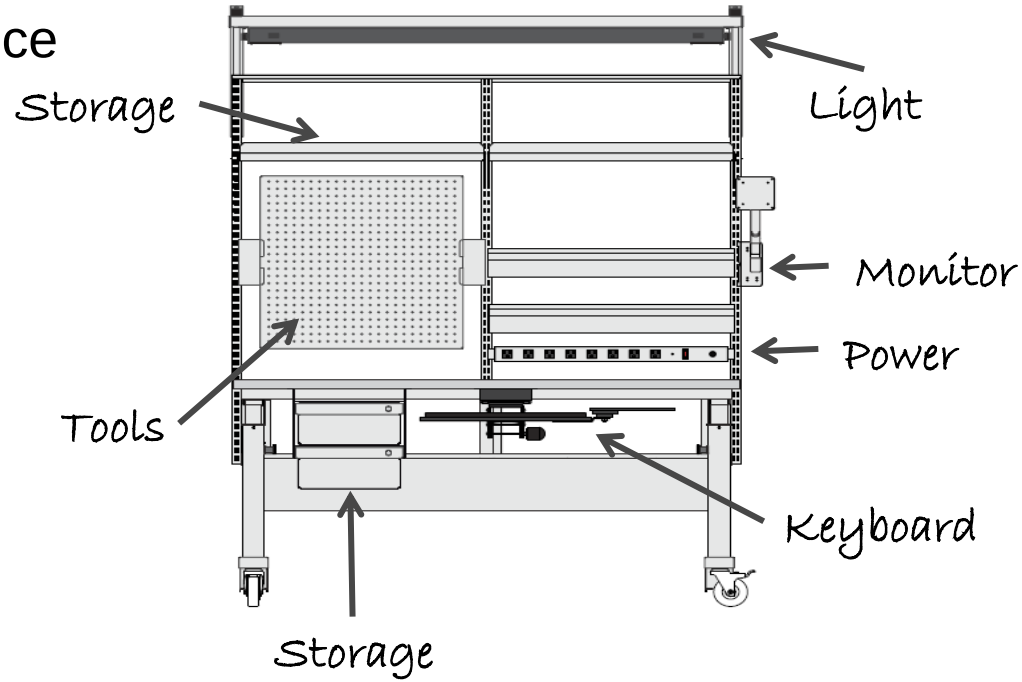
Material handling vehicles

- Larger diam. wheels (8”+) help minimize push/pull forces
- Simple-to-use, locking brakes
- Handles should be at a good height for users (36”-42” ht.)
- Carts with elevating platforms can eliminate awkward lifting

Designing a Workstation

Documentation for future reference

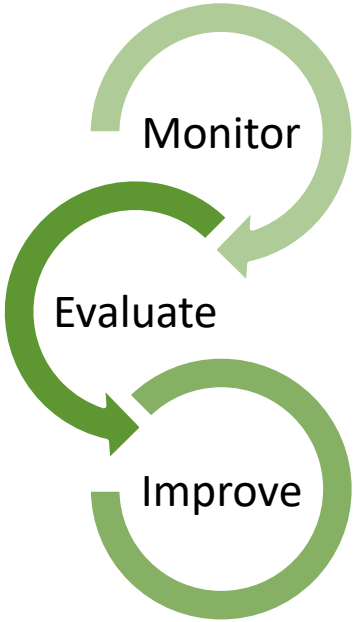
- Workstation design process
- Operator training
- Material/product flow



Designing a Workstation

Ongoing Evaluation

It is important to constantly monitor workstation usage to look for ways to improve upon processes and ensure an efficient, safe workspace for the operator. Observing and interviewing the operators on a regular basis provides opportunity to gain useful knowledge.



Implementing Ergonomics Solutions: Step 1

Identify the Problem: What activity is happening that requires repetitive motion?

Implementing Ergonomic Solutions: Step 2

Examine Possible Solutions Based on the Activity

- Spend time observing the work being performed and discuss the actions with the worker performing the job. This will allow you to pinpoint the areas causing the stress.

- Determine if it is possible to change the way the work is being done in order to eliminate the movement. If so, a change in Standard Operating Procedures or Standard Work Practices may be the ideal solution.

- When searching for equipment, it is important to match the equipment to the job being performed. “One size does not fit all.”

- Many times, the solution may not be a single piece of equipment, but a series of products working together to provide maximum benefit.

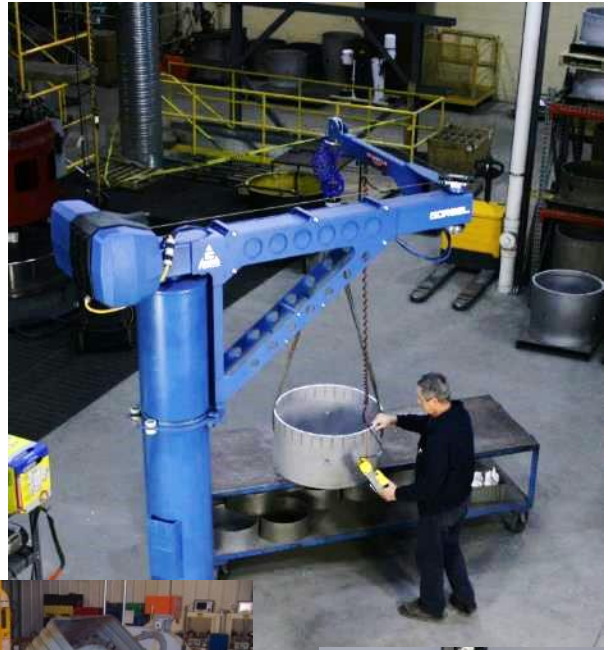
Common Ergonomic Challenges

- ❑ Pick and Place – moving components from one place to another
- ❑ Production Parts – moving items throughout the plant
- ❑ Pallets – loading and unloading
- ❑ The Aging Workforce

Common Ergonomic Challenges

- ❑ Pick and Place – moving components from one place to another

- Many of these applications involve the same repetitive motion throughout the day.
- Due to this, equipment that may be programmed based on height of the lift, weight of the load, and overall length of travel may ease the strain.
- These intelligent lifting devices may be used as standalone units or in conjunction with products that make access to the components and parts effortless.



Common Ergonomic Challenges

- ❑ Production Parts – moving items throughout the plant

- Many times, moving parts throughout the factory using conventional carts is the most effective means of transportation.

- Carts can be equipped with wheels or casters designed for ease of movement and reduced push/pull forces.

- Many of these casters can be retrofit to traditional carts.

Common Ergonomic Challenges

❑ Pallets – loading and unloading

Represent unique challenges due to:

- Type of load may differ widely
- Weight of each individual item
- Size of pallets may differ
- Reach required may vary

Numerous options exist for the leveling of loads in order to reduce bending, reaching, and lifting by keeping the pallets at the optimal height for loading materials onto conveyors, forklifts, or shelves

Common Ergonomic Challenges

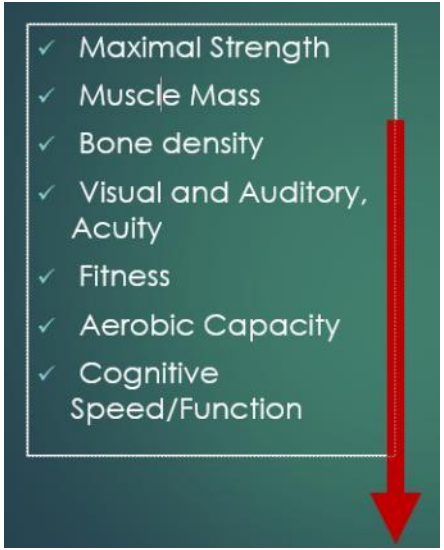
❑ The Aging Workforce

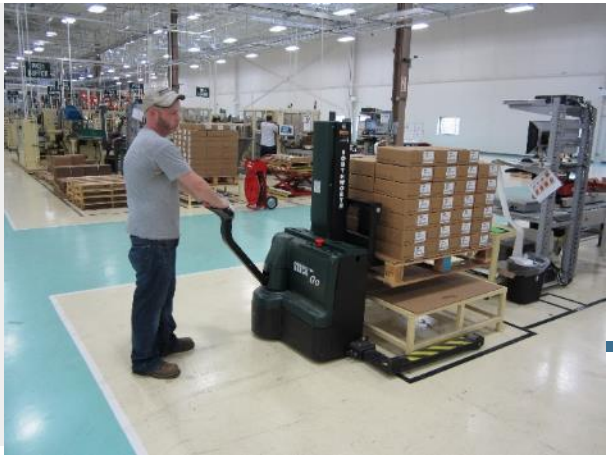
- The two largest issues impacting worker's compensation claims are aging and obesity.
- Many more workers plan to be employed past the mandatory retirement age.
- With today's tight labor market and the lack of adequate funds for retirement, the trend towards a more seasoned workforce is likely to accelerate.
- Obese workers file twice as many WC claims. The most likely causes for these claims are lifting, lowering, and slipping. Body parts most impacted are back, lower extremities, wrists, and hands.

Common Ergonomic Challenges

- The Aging Workforce

  Due to the factors listed here, there is a need a need to ease the overall strain of the job. One of the primary options is to select the proper ergonomic equipment for the worker and the job being performed.



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For More Information

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