

PREVENTING MUSCULOSKELETAL DISORDERS: PRACTICAL ERGONOMICS FOR ANY WORKPLACE

NATIONAL ERGONOMICS MONTH

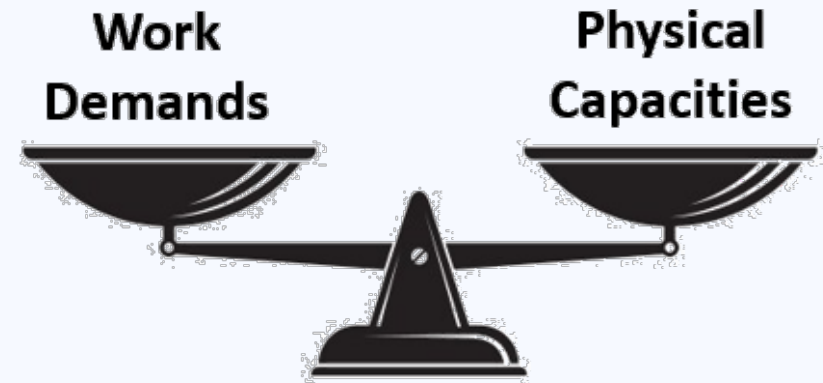
WHAT WE WILL TALK ABOUT

- What is Ergonomics
- Benefits of Ergonomics
- MSDs and Risk Factors
- Where to Find Potential Problems (Opportunities)
- Practical Solutions



ERGONOMICS IS ABOUT ...

... reducing injury risk and increasing productivity by designing (changing) work layouts and set-ups, equipment and tools so, work demands do not exceed employees' physical capacities.

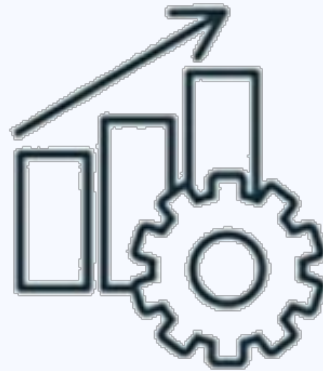


Fitting the work to the worker instead of the worker adapting to the work!

WHY IS ERGONOMICS GOOD FOR YOUR BUSINESS



Injuries
Workers' Comp \$



Quality
Productivity



Job Satisfaction
Employee Retention

Ergonomics ROI: for every \$1 invested in solutions, there is a \$2 - \$5 return

WHAT ARE MUSCULOSKELETAL DISORDERS (MSDs)?

Soft tissue injuries that usually involve the joints. Also known as sprains and strains, overuse injuries, repetitive movement injuries and cumulative trauma.

- Muscles
- Tendons
- Ligaments
- Nerves
- Spinal discs
- Blood vessels



3 OF THE TOP 10 INJURY CAUSES CAN BE PREVENTED BY ERGONOMICS

1

Overexertion involving
outside sources

Cost per year: **\$13.7B**



Watch for heavy loads

Do workers have access to equipment that reduces the need to lift heavy items?

Moving stuff – lifting, carrying, pushing and pulling

5

Other exertions or
bodily reactions

Cost per year: **\$3.9B**



Watch for exiting a vehicle

Are ergonomic measures implemented wherever possible?

Awkward postures and movements, static postures

9

Repetitive motions
involving microtasks

Cost per year: **\$1.8B**



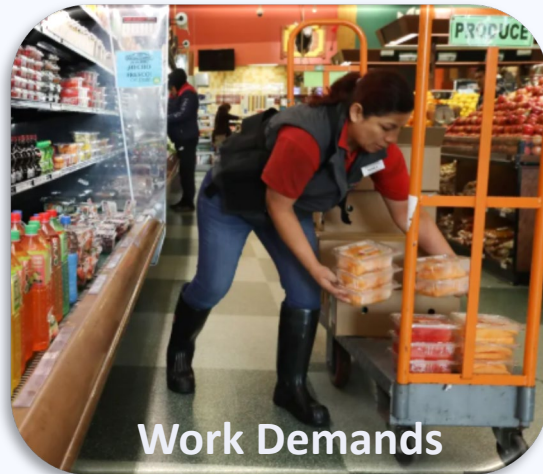
Watch for hand- and shoulder-intensive work

Do engineering controls reduce forceful exertions and enable good postures, and does scheduling allow for breaks?

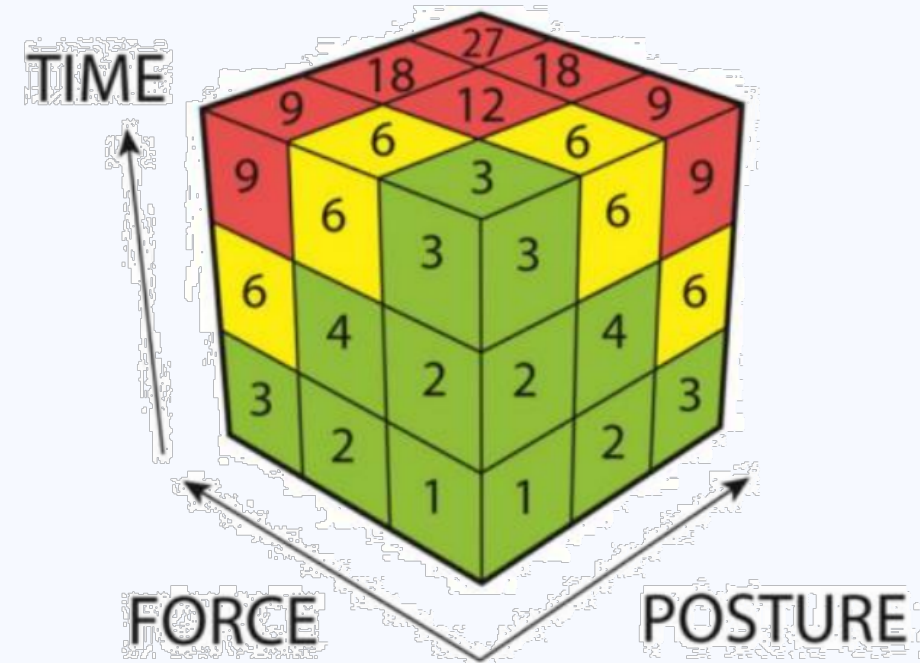
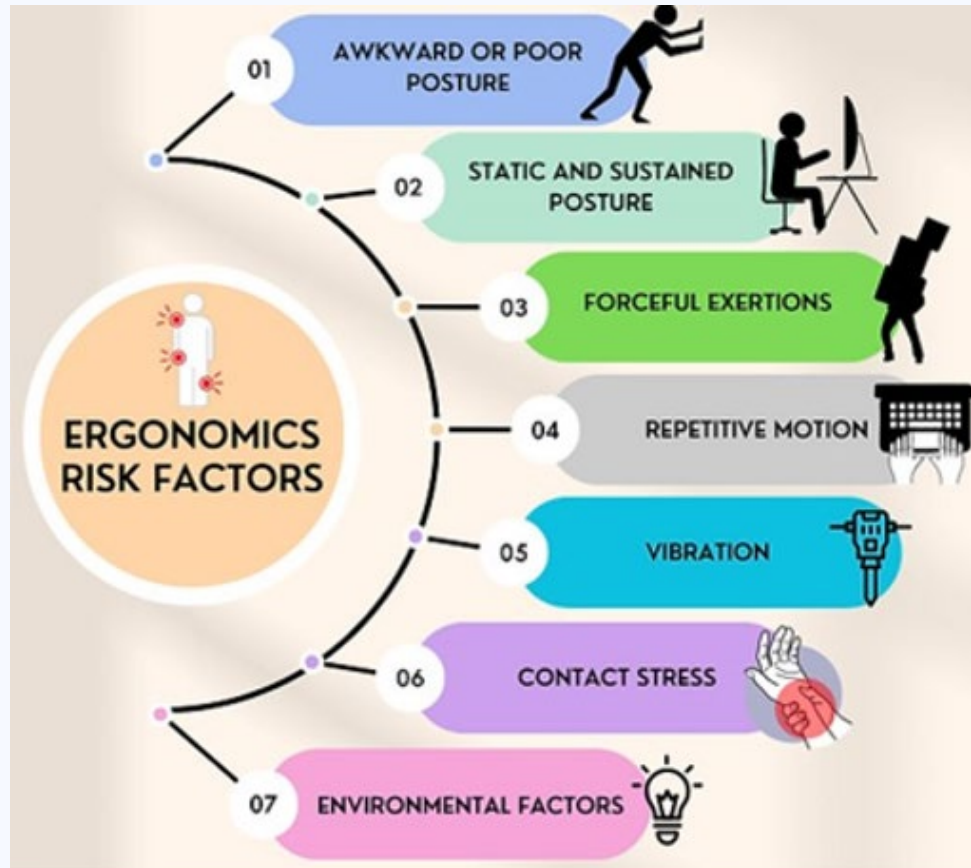
Packing, unpacking, sorting, picking, stocking, cutting, assembly, constructing

Source: Liberty Mutual 2025 Safety Index

WHAT CAUSES MSDs

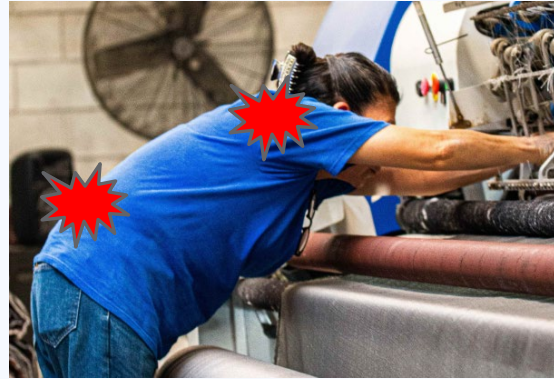


WORK DEMANDS > WORKERS' CAPACITIES = RISK FACTORS



The Big Three

INDUSTRIES (WORKERS) AT RISK – ALL!



BUT BEFORE SOLUTIONS WE HAVE TO FIND THE PROBLEMS



WHERE TO FIND POTENTIAL PROBLEMS (& OPPORTUNITIES)

Look for:

- Manual materials handling
- Hand and shoulder intensive tasks
- Any task with awkward and static postures

Talk with employees about their work:

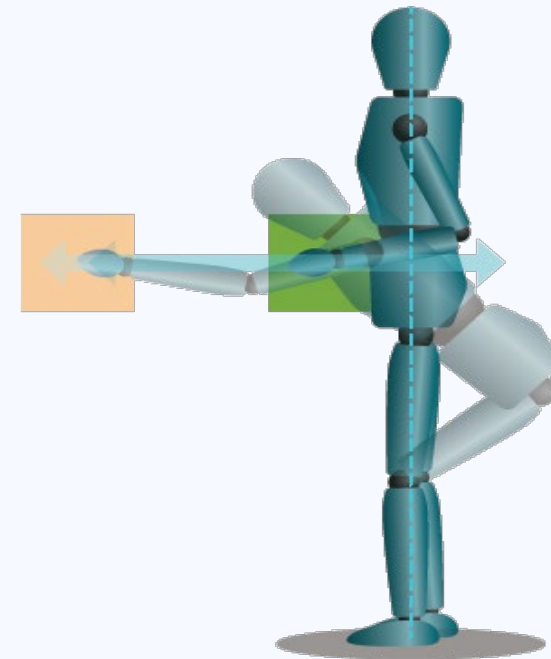
- Ask them about what they do, how they do it and why it is done that way, and what ideas do they have to make the work better



MANUAL MATERIALS HANDLING TASKS

Lifting, carrying and lowering stuff – things to think about :

- Object weight – how much is too much?
- Hands far away, overhead or below knees
- Poor hand holds
- Lifting frequency
- Lifting duration



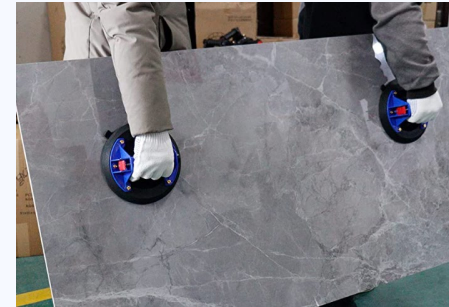
MANUAL MATERIALS HANDLING SOLUTIONS – LIFTING & CARRYING

Store it off the floor!



MANUAL MATERIALS HANDLING SOLUTIONS – LIFTING & CARRYING

- Add handles
- Use boxes/totes/bins with handles
- Order supplies in smaller, lighter containers
- Order in bulk and mechanically lift and dump
- Ask suppliers to list box weights
- Use MMH gloves



MANUAL MATERIALS HANDLING SOLUTIONS – LIFTING & CARRYING

- Unload heavy boxes instead of lifting
- Use smaller containers that can be lifted closer to the body
- Carry shallower containers for easier walking
- Store objects close to where they will be used
- Roll it, instead of carrying it



MANUAL MATERIALS HANDLING SOLUTIONS – LIFTING & CARRYING

And of course, lift assist equipment



MANUAL MATERIALS HANDLING TASKS

Pushing and pulling hand trucks, carts and pallet jacks – things to think about:

- Load weight
- Handle height
- Wheel size, material and condition
- Floor condition
- Inclines and thresholds

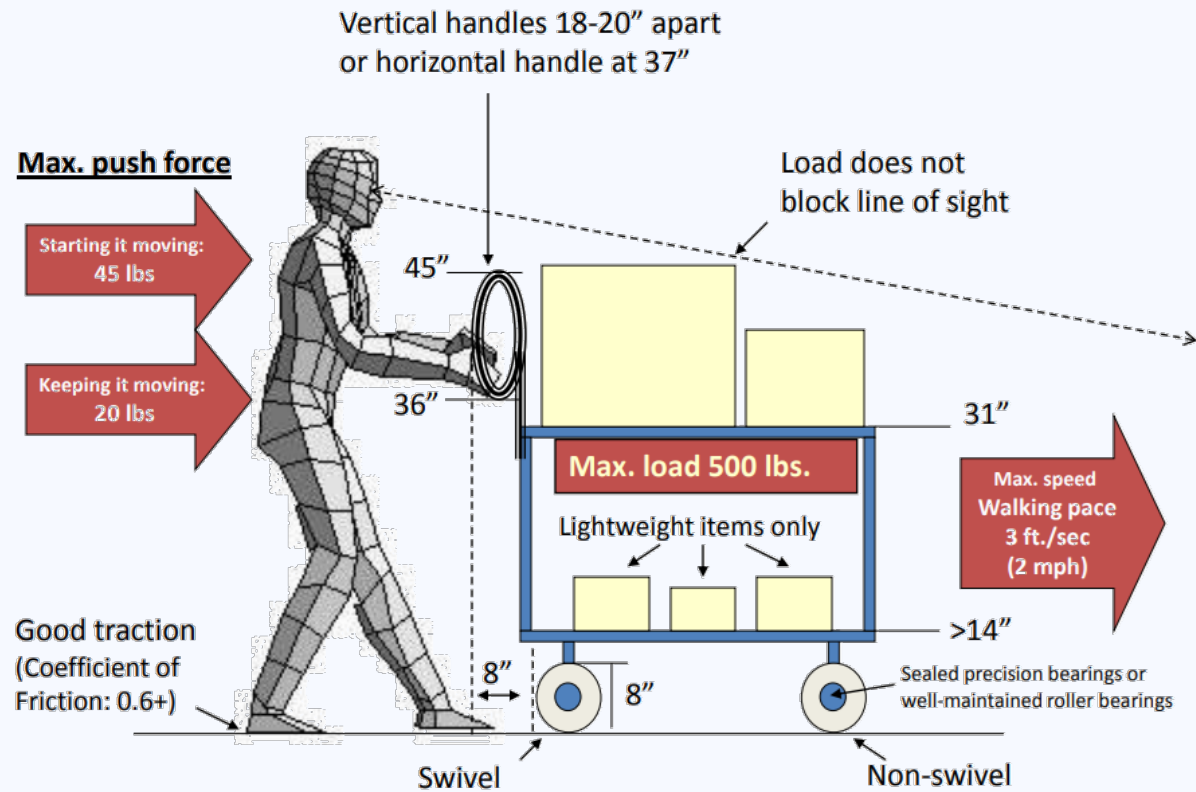


MANUAL MATERIALS HANDLING SOLUTIONS – PUSHING & PULLING

- Stage multiple items on carts and hand trucks, but not too much
- Store items close to where they will be used to minimize distances
- Make clear paths so workers don't push/pull over obstacles, up ramps or make frequent turns
- Floor maintenance/housekeeping
- Conveyors, pallet jacks, tuggers
- Inspect and maintain MMH equipment



CART DESIGN



HAND INTENSIVE TASKS

Packing, unpacking, sorting, assembly, fabricating – things to think about:

- Forceful gripping and pinching
- Bent wrists
- Raised elbows and shoulders
- Repetitive movements



HAND INTENSIVE TASK SOLUTIONS

Select the right tool for the task – handle design depends on task type

For POWER tasks

Single-Handle Tools



HANDLE DIAMETER
for power tasks
is 1 1/4 inches to
2 inches

Double-Handle Tools

OPEN GRIP SPAN
for power tasks is not
more than 3 1/2 inches



CLOSED GRIP SPAN
for power tasks is not
less than 2 inches



For PRECISION tasks

Single-Handle Tools



HANDLE DIAMETER for precision
tasks is 1/4 inch to 1/2 inch

Double-Handle Tools

OPEN GRIP SPAN
for precision tasks is
not more than 3 inches



CLOSED GRIP SPAN
for precision tasks is not
less than 1 inch



Source: NIOSH: A Guide to Selecting Non-Powered Hand Tools

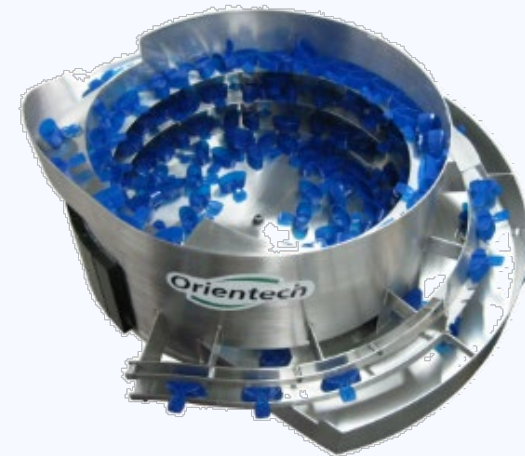
HAND INTENSIVE TASK SOLUTIONS

Select the right tool for the task — handle design depends on task orientation



HAND INTENSIVE TASK SOLUTIONS

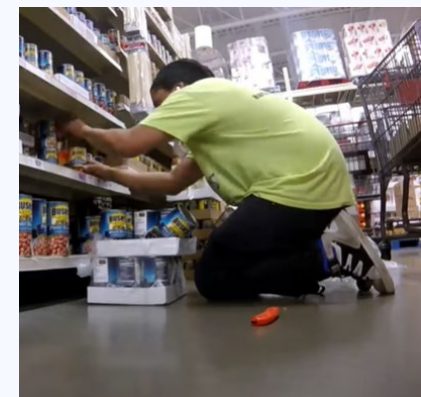
- Fixtures, vises, cradles and clamps
- Keep materials from becoming jumbled/tangled
- Tool maintenance



TASKS WITH AWKWARD AND STATIC POSTURES

Things to look for – work that is:

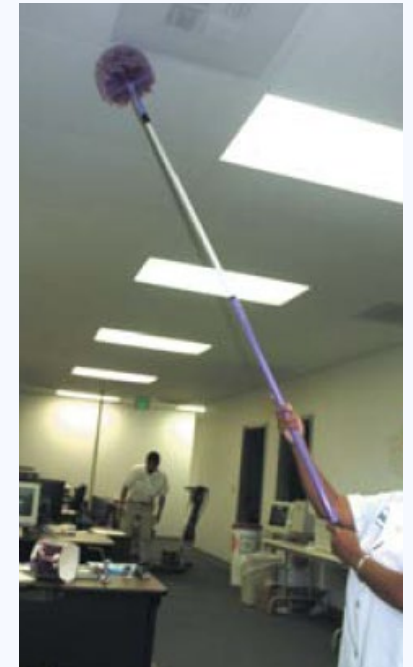
- Too high (reaching above head height)
- Too low (reaching below the knees)
- Too far (extended reaching of the hands)
- Static (holding the same posture with little movement)



TASKS WITH AWKWARD AND STATIC POSTURES SOLUTIONS

If the work is too high, lower the work, or:

- Safely raise the worker
- Use tool extenders



TASKS WITH AWKWARD AND STATIC POSTURES SOLUTIONS

If the work is too low, raise the work, or:

- Safely lower the worker
- Use tool extenders



TASKS WITH AWKWARD AND STATIC POSTURES SOLUTIONS

If the work is too far, bring the work closer, or:

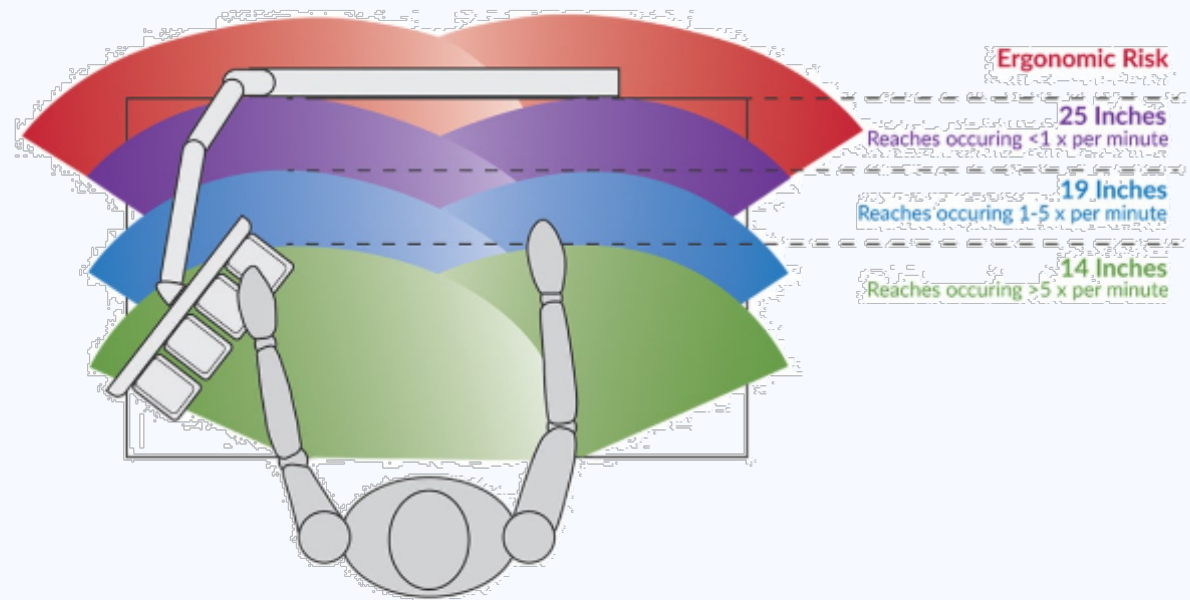
- Bring the worker closer
- Tilt the work



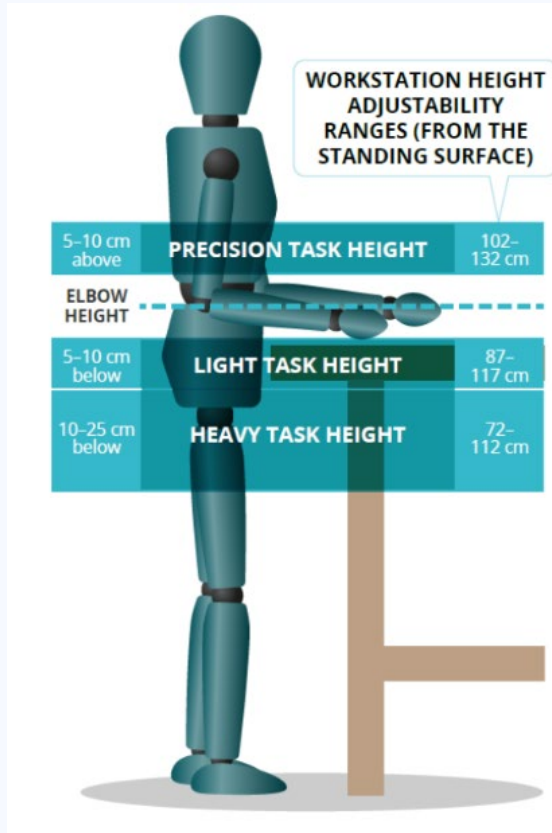
TASKS WITH AWKWARD AND STATIC POSTURES SOLUTIONS

Keep it close – reach envelopes:

- Rearrange tools and supplies
- Reduce work surface size
- Make cutouts
- Use swing arms
- Tilt tables
- Lazy Susans



TASKS WITH AWKWARD AND STATIC POSTURES SOLUTIONS



	WORKSTATION HEIGHT - IMPACT ON POSTURE					
	TOO LOW		OPTIMAL		TOO HIGH	
Precision Tasks (Assembling bolts)		Back bending and rotated neck posture required to view task		5-10 cm above elbow height Wrist/forearm support required		Improved visibility but shoulders in awkward postures
Light Tasks (Cutting material)		Back bending required to view task and handle tools/objects		5-10 cm below elbow height		Shoulders and wrists in awkward postures to handle tools/objects
Heavy Tasks (Operating manual cutter)		Back bending required to reach and generate force required		10-25 cm below elbow height		Awkward shoulder posture reduces ability to generate force

TASKS WITH AWKWARD AND STATIC POSTURES SOLUTIONS

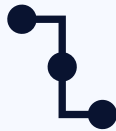
Keep elbows, shoulders and neck relaxed – change the orientation of the work, not work postures





Questions?

GET IN TOUCH



LINKEDIN

<https://www.linkedin.com/in/ed-havey-m-s-cpe-01126715/>



EMAIL

EHAVEY@COMPLIANCEPLACE.COM



PHONE

509.432.1003