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1.0 ERGONOMICS IN CONSTRUCTION

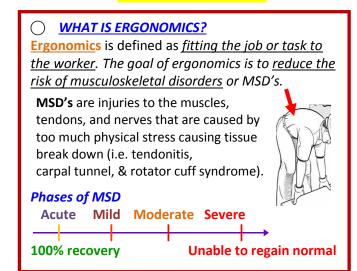
Facilitator / Leader Tasks Before the Tool Box Talk (TBT):

- 1. Read through this TBT guide.
- 2. Walk the job site to find ergonomics examples based on the TBT. If possible, take photos of "safe" and "unsafe" examples at the site to be used during the TBT.
- 3. Write down discussion questions to ask the group. Fill them in on page 2 "Other Questions."

Learning Goals: After discussing this training topic, workers will have gained a general understanding of:

- Ergonomics
- Musculoskeletal Disorders MSDs
- Phases of MSDs and the importance of using ergonomic solutions
- Injury Hazards that may cause MSDs.

TRAINING CARD:



Risk for MSD increases with these hazards:
Repetition- same task or muscles used repeatedly
High Force- high muscle power in lifting & gripping
Awkward Postures- joints bent out of normal position
Contact Stress- pressure pressed on small body area
(examples: palm, knee, or forearm)
Hand-Arm Vibration-from power tools or equipment

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What can we do about it?

- *Think about **tasks** that are uncomfortable or *difficult to perform*.
- *Try **solutions** (work technique, tools or equipment) to <u>make the task easier</u> to perform.
- *Share your ideas and ask others for ideas.

TRAINER'S TALKING POINTS:

What is Ergonomics?

Ergonomics is the way you use your body to work and fitting the job or task to you to reduce your risk of injury. These *musculoskeletal* injuries develop slowly over time and occur in the soft tissues of your body like the nerves, tendons, muscles, ligaments and joints. Examples of these injuries are low back strain, carpal tunnel syndrome, and tendonitis. These injuries are called *musculoskeletal disorders or MSDs*.

Why Should We Talk About Ergonomics in Construction?

Ergonomics can help you protect your body from injuries. Using ergonomics during work activities makes the work easier on your body and often *helps* you find ways to do your work more efficiently.

What are the Phases of MSDs?

Unlike injuries from falls, electrocution, or other serious hazards, musculoskeletal disorders don't seem very serious when they first show up. They **start with minor discomfort** in the early stages. These symptoms go away after a short break or at night when you don't work. But returning to the same activity the next day brings back the symptoms.



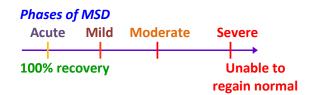
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TRAINER'S TALKING POINTS

Your body can recover between these episodes of intense activity in the earlier stages when the symptoms are mild or moderate but eventually, your body won't be able to recover to normal. Recognizing the problems in work tasks that cause these symptoms is the first step to eliminating them.



What are the risks of MSDs?

There are 5 common ergonomic hazards that may occur in work activities.

- Repetition- involves doing the same task repeatedly that uses the same muscles over and over.
- High Force- using high muscle power during activities such as heavy lifting, pushing items or gripping tools.
- Awkward Postures- working with your body held in a poor position for a long time.
- Contact Stress- when pressure from an object is pushed on the soft body tissues (i.e. tool handle).
- Hand-Arm Vibration-vibration that enters the body from a power tools or equipment.

One of these hazards performed over a long time can cause a problem but activities with more than one hazard can increase physical discomfort even more.

What can you do to prevent MSDs?

First you must recognize the hazards in your work tasks.

- *Think about tasks that are uncomfortable or difficult to perform.
- *Try solutions (work technique, tools or equipment) to make the task easier to perform.
- *Share your ideas and ask others for ideas.

Note to the trainer: the table on the following page provides examples of several tasks, hazards, and solutions. If you have time, you can share them with the group. You may also post them for others to look at after the presentation.

References:

Washington State Department of Labor and Industries. Caution Zone Checklist.

http://www.lni.wa.gov/wisha/ergo/evaltools/CautionZones2.pdf

Washington State Department of Labor and Industries. Hazard Zone Checklist.

http://www.lni.wa.gov/wisha/ergo/evaltools/hazardzonechecklist.pdf

Canadian Centre for Occupational Health and Safety. Pushing & Pulling – General.

http://www.ccohs.ca/oshanswers/ergonomics/push1.html

NIOSH Simple Solutions: Ergonomics for Construction Workers, 2007, http://www.cdc.gov/niosh/docs/2007-122/.

Refer to the resources at our website: oshr.im.wustl.edu for more Tool Box TIPS.



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TRAINER'S TALKING POINTS

Training Note: Here are examples of hazards in different construction trades. Choose your trade or one that is similar to your group's line of work that can be used as hazard examples.

	Hazards						
		Awkward		Contact	Hand-Arm		
Trade	High Force	Postures	Repetition	Stress	Vibration		
Carpenter	<u>Hands</u> :	Operating a	Driving screws	Repeatedly	During prep		
- Drywall	Gripping a utility knife	screw gun	into drywall	using your	work, using a		
	with a dull blade to cut	overhead	every couple	palm to hit	concrete saw		
	drywall.	with the arm	of seconds for	the blunt	to cut into the		
	Whole body: Lifting a	fully extended	2 hours	edge of a	floor for more		
	drywall sheet > 100 lbs	and the wrist	without brief	metal stud	than 2 hours in		
	by yourself.	bent.	rest periods.	into place.	a shift.		
Floor	<u>Hands</u> :	Spreading	Using the	Kneeling on	Operating a		
Layer	During prep, gripping a	adhesive	same arm	concrete	walk-behind		
	hand scraper to scrape	using a hand	motion	without	electric floor		
	stuck VCT and glue off a	trowel with	repeatedly to	wearing	scraper that		
	concrete floor.	the arm fully	spread floor	kneepads.	shakes the		
	Whole body:	extended out	leveler over an		hands and arms		
	Push/pulling a pallet of	to the side	open floor for		for more than 2		
	ceramic tiles using a	and the wrist	two hours		hours		
	pallet jack with bad	bent.	without brief		in a shift.		
	wheels.		rest periods.				
Sheet	<u>Hands</u> :	Prepping duct	Shop work:	Repeatedly	Operating a		
Metal	Gripping snips to cut	parts on the	Repeated,	using your	hand-held		
Worker	thick gauge metal.	floor while	similar	palm to hit/	hammer drill		
	Whole body:	bending the	motions	assemble	to drill holes in		
	Lifting a long piece	back and	during	metal	concrete for		
	of duct alone without	reaching to	deburring that	pieces	more than 2		
	the use of a handling	work on	occurs for 2	together.	hours in a		
	device.	them.	hours or more		shift.		
			without brief				
			rest periods.				



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TRAINING ATTENDANCE SHEET

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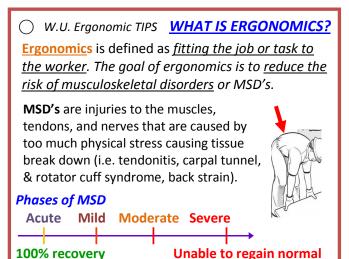
Date:

ATTENDEES

NAME	NAN	ΛF
10,1012	10/11	,,,,

Directions for making laminated training cards:

- 1) Print out color copies of this sheet
- 2) Cut along the dotted lines
- 3) **Fold** each strip of cards in **half** (back to back)
- 4) Place folded cards in laminating pouch & slide through laminating machine (6 folded cards will fit in 1 pouch)
- 5) **Cut out cards & punch a hole** in the circle (top left corner)
- 6) Collect each week's training card on a spring clip (small carabiner) to keep the series of cards together.



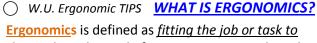
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the worker. The goal of ergonomics is to reduce the risk of musculoskeletal disorders or MSD's.

MSD's are injuries to the muscles, tendons, and nerves that are caused by too much physical stress causing tissue break down (i.e. tendonitis, carpal tunnel, & rotator cuff syndrome, back strain).

Phases of MSD

Acute Mild Moderate Severe

100% recovery

Unable to regain normal

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Ergonomics is defined as *fitting the job or task to* the worker. The goal of ergonomics is to reduce the risk of musculoskeletal disorders or MSD's.

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