



5.0 MANUAL TOOLS

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:

- Hand injuries related to manual hand tool use.
- Principles of choosing comfortable hand tools.

TRAINING CARD:

○ CHOOSING MANUAL HAND TOOLS: 6 Tips

Ask these 6 questions when choosing your hand tools: **Does the tool...**

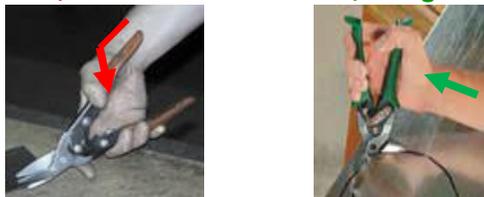
1. **Fit the task?** Long handle vs. short, wrench vs. ratchet, straight snips vs. offset...
2. Allow a **good power grip**, not too wide/ narrow?

Poor, wide grip >3.5" **Good, closed grip span between 2" to 3.5"**



3. Keep your wrist in a **straight posture**?

Poor, bent wrist **Good, straight wrist**



4. Feel **comfortable**? Doesn't cut into hand or press into palm, & tool is not too heavy.
5. Take **less effort** than other tools for the task?
6. Work **effectively**? When blades are sharp, joints are oiled, or bolts are tight, it does a good job.



TRAINER'S TALKING POINTS:

Why should we talk about manual hand tools?
To save your hands and elbows from fatigue and wear and tear over time.

When using hand tools that don't fit your hand, require high force to use, and need to be used repeatedly, you are at risk for a hand or arm musculoskeletal disorder or MSD like carpal tunnel syndrome or tennis elbow. Reduce your risk of a hand or elbow MSD, by asking these 6 questions when choosing your hand tools:

Does the tool...

1. **Fit the task?** Try to use tools that are made for the task instead of substitutes. For instance, use a chisel with a hand guard instead of a straight screw driver as a chisel. Other examples include: Long handle vs. short and straight snips vs. offset snips.
2. Allow a **good power grip**, not too wide/ narrow? A wide grip occurs with a handle span more than 3.5" wide. A good grip span is between 2 and 3.5 inches.
3. **Keep your wrist in a straight posture?** Gripping with the wrist bent reduces your available grip strength.
4. Feel **comfortable**? A tool that cuts into the hand or presses into the palm can damage your hand. Heavy tools may make you work harder to handle them compared to a lighter tool.
5. Take **less effort** than other tools for the task? Some tools are designed to improve mechanical advantage. Examples include: wrench vs. ratchet wrench, short handle vs. long handle.
6. **Work effectively**? When blades are sharp, joints are oiled, or bolts are tight, the tool does a good job.



MANUAL TOOLS

TRAINER'S TALKING POINTS

Tool Comparison Discussion: Print a copy of this sheet for your workers to use a discussion guide. Bring a few hand tools (currently used at the job site) to use as hands-on examples for the discussion. Discuss the pros and cons of the recommended design features as they relate to current work tasks.

Discussion Questions: Tool Design Quality

Examples

For single-handle tools used for power tasks:
Does the tool feel comfortable and have a handle diameter between 1- 1/4 inches and 2 inches?



For double-handle tools used for power tasks:
Is the grip span at least 2 inches when closed and no more than 3 1/2 inches when open?



Is the tool handle the best length for the task to maximize leverage and keep the wrist straight?



Long-handle tool



Short-handle tool

Can the tool be used while keeping your wrist straight?



For high-force tasks:
Is the handle longer than the widest part of your hand (usually 4 inches to 6 inches)?



Does the tool handle have a non-slip surface without sharp edges or grooves?



References:

- Centers for Disease Control. 2004. Easy Ergonomics: A Guide to Selecting Non-Powered Hand Tools. <http://www.cdc.gov/niosh/docs/2004-164/pdfs/2004-164.pdf>.
- Dababneh A, et al. 2004. A Checklist for the Ergonomic Evaluation of Non-Powered Hand Tools, Journal of Occupational and Environmental Hygiene. Refer to the resources at our website: oshr.im.wustl.edu for more Tool Box TIPS.

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.

○ W.U. Ergonomics - TIPS

CHOOSING MANUAL HAND TOOLS: 6 Tips

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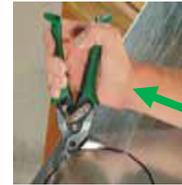


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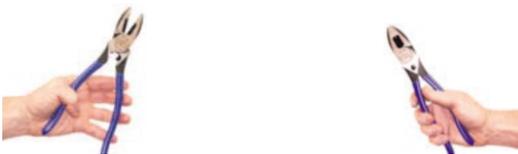
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