

Hand tools

Why it's important

Most of the muscles that operate the hand are in the forearm. Because many hand tools cause the wrist to bend, a lot of stress is placed on the tendons, nerves and blood vessels

Damage occurs to the soft tissue of the hand when the tools that are being used press into the palm. The soft tissue damage can result in bruising, numbness and/or tingling in your fingers.

Tools that are too heavy or improperly balanced, grip spans that are too large, too small, slippery or the wrong shape can lead to injuries.

How to control the hazards

Grips

- Avoid tools that cause your wrist to bend downward or upward. Your tool should do the bending, not your wrist. A properly designed grip will reduce fatigue on the muscles and joints and decrease any pain.
- Power grip (hand wrapped around the handle) should be used over a pinch grip (item held between the thumb and index finger). The power grip allows the greatest force with the least amount of strain on the forearm, wrist and hand muscles, ligaments and joints.

Weight

- The heavier the tool, the more fatigue on the muscles which makes it more difficult to control the tool.
- Hand tools should weigh no more than 2.3 lbs (1 kg).
- The centre of gravity should be in line with the centre of the hand gripping the tool.

Handle size

- Foam- or rubber-handled tools reduce the amount of vibration felt in the hands and arms and are more comfortable.
- The handle should allow the hand to go more than halfway around the handle without the thumb and

finger meeting. If gloves are being worn for the task, the handles must be evaluated to ensure the tool can accommodate the larger palm size.

Grip surfaces

- The ideal grip surface is smooth, non-conductive and able to slightly compress to dampen the vibration in the hands and fingers. Rounded handles will reduce any compression.
- The end of the handle should not rest in the palm of your hand.
- Spring-assisted tools require less finger and hand effort because they automatically open.
- A swelling of the tendon in the palm of the hand that bends the finger can occur when the tool requires the index finger or thumb to activate the tool. The trigger should be longer to allow more fingers to activate the tool when possible.

Other factors

- Maintenance of tools is very important. When a tool is not properly maintained, the chance of injury increases. For example, dull tools require more force from the user to get the required result.
- Replace old or worn-out tools with new ones to reduce the overall risk.

Show and tell

- Using several of the tools that are used on the job at your firm, demonstrate how each one feels in your hand. Explain the grips, weight, handle size, grip surfaces and other factors using the work tools as props.
- Pass the tools around to the participants. It's important for them to understand why certain tools have been chosen for the work being done.
- Observe the participants handling the tools. If any of the tools don't meet the ergonomic criteria set out in this Talking Safety session, consider replacing them with more suitable tools.