A Show of Hands

Most of us take our hands for granted; we assume they'll always be there and function correctly whenever we need them. This is especially true for those working in the various trades of construction. Although some type of computerized technology rules much of our every day life, construction is still a very much "hands-on" occupation. Because of this, construction workers hands, wrists and forearms are at risk of serious injury.

As a machine that is built to complete a precise task will be complex in design, the hand is no exception. It's actually an engineering wonder made up of a combination of:

- 27 bones
  - Carpals or wrist bones
  - Metacarpals or the bones of the palm of the hand
  - Phalanges or finger bones
- Muscles
- Tendons that attach the muscles to the bones
- Nerves
- Blood vessels

These parts come together to act as a rope and pulley system. The tendons in the hand attach the muscles needed for movement to the bones of the hand. These tendons act as the rope in the pulley system, while the bones of the hand and wrist act as the pulley. Due to this complex system of pulleys and ropes needed for the most basic movements of the hand, it makes sense that the hands and wrists can be easily injured and potentially disabled on a worksite. Injuries, even minor ones, can make working on a construction site a physical challenge.

This anatomy lends itself to three painful, potentially serious injuries. All three stem from the same root cause; inflamed and swollen tendons of the hands and wrists. These common hand injuries are:

- Tendonitis
- Trigger Finger
- Carpal Tunnel Syndrome

The space through which the tendons pass from the forearm to the hand is a small area called the carpal tunnel. This tunnel also contains the median nerve, the main nerve that controls hand movement. Due to these close quarters, any time a tendon becomes inflamed and swollen, pressure is put on the nerve. This pressure can result in pain, tingling or numbness in the arm, wrist or hand, causing difficulty when grasping tools and using the hand. If not dealt with early on these symptoms will worsen and can become a permanent, almost disabling condition.

Since these injuries are all result from the same cause, treatment and prevention for them will be much the same. The best treatment is prevention; don't allow them to occur in the first place or try to minimize the risk. The swelling is a direct result of repetitive, forceful hand movements that are the mainstay of work on a jobsite. One way to minimize this is to take periodic breaks to rest the hands and to avoid movements that aggravate these conditions. Unfortunately, this is unrealistic on a jobsite, so these are common injuries. Preparing the hands before work begins can help to decrease the need for rest breaks. Employees should complete a series of on-the-job stretching exercises can help to warm up the muscles and gently stretch the tendons. Other preventive measures can include:

- Change the materials or work processes used to decrease the amount of repetitive actions. Using lock nuts or button nuts can very effectively reduce repeated hand-arm twisting and turning that occurs over the course of a workday.

- Change the tools or equipment used. Whenever it's possible, substitute a power tool for a non-powered hand tool; this will decrease the wear and tear on the hands and wrists.

- Use ergonomic hand tools. Sometimes a power tool just isn't an option; this is when a relatively new class of hand tools would be a good fit- those that are ergonomically friendly. There are several characteristics that cause a hand tool to be considered ergonomic, such as:

    - The tool must fit the task to be done. It's best to use the right tool for the job, instead of "making it work" with the wrong tool.
    - Be sure the tool fits comfortably in the hand. A tool that is too big or too small in the hand will result in unnecessary stress on the hands and wrists.

    - The tool allows for a good grip. The size of the handle is determined by the task to be accomplished. For a task that requires a good amount of force and larger handle would be a better fit; one that is between 1¼ and 2 inches. A task that uses less force and more precision, a smaller handle would be appropriate; ¼ to ½ inch.

    - The tool shouldn't dig into the hands or fingers. This is easily accomplished by using a tool with a cushioned handle.

By following these preventive measures, it may be possible to minimize hand and wrist injuries on your jobsites. These injuries are certainly an area where an ounce of prevention is worth a pound of cure.

For additional help with safety and OSHA compliance, take advantage of the resources available through NCMA. These resources include the NCMA Block Plant Safety Software. The software is available from NCMA at (703) 713-1900 at a cost of $150 for up to 3 plants/year (nonmember $450).