

## **PRESENTER'S GUIDE**

# **"HAND, WRIST AND FINGER SAFETY IN CONSTRUCTION ENVIRONMENTS"**

**Part of the Construction Safety Kit Series**

# **OUTLINE OF MAJOR PROGRAM POINTS**

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The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Whether we're on a job site, having a barbeque or playing catch with the kids, our hands are involved in just about everything we do.**
- **They're exposed to many different hazards every day.**
  - Getting hit can bruise or break them.
  - Sharp edges and rough or splintery materials can cut, scrape and puncture them.
  - Powered equipment can grab, crush and even amputate them.
  - Even small stresses can cause severe injuries over time.
- **Fortunately, there are ways to guard against these hazards and prevent hand injuries.**
- **Our hands have the strength, dexterity and sensitivity to grasp, lift and manipulate objects of many shapes and sizes.**
  - That's because of their efficient design.
- **The 27 bones that give the hand and wrist their structure are connected by muscles, ligaments and tendons.**
  - They give the hands motion and strength.
- **The nerves in the hand not only provide sensation but also tell the muscles when and how to move.**
- **Blood vessels feed the different tissues in the hand, and the whole system is covered by layers of skin.**
  - But there's only so much that skin can do to protect that system.

- **All of the tissues in the hand are close to the surface, the bones in them are small, and their joints can be complex.**
  - Because we use them for so many things, it can be easy to forget how delicate our hands can be.
- **Just hitting your thumb with a hammer can injure skin, nerves, connective tissue and bone.**
  - In fact, a single "traumatic mistake" like this can affect your hands seriously, even permanently.
- **Our hands are also vulnerable to stresses and strains that can cause injuries gradually, over long periods of time.**
  - These are called "ergonomic" hazards.
- **The wrist, for example, is an ergonomic "weak spot".**
  - Nerves, muscles, tendons, ligaments and blood vessels pass through it on their way to the hand.
  - Placing extra strain on the wrist can damage all of these over time.
- **To keep our hands, wrists and fingers safe, we need to watch out for ergonomic hazards that can hurt us, as well as for the hazards that can cause traumatic injuries.**
- **The best way to protect our hands, wrists and fingers from injury is to prevent accidents from happening in the first place.**
  - That means paying attention to the basics and thinking "safety first" throughout the day.
- **Before you start any task you should first ask yourself if you're in the right state of mind to work safely. For instance:**
  - If you're feeling angry, or are distracted, you're more likely to get hurt.
  - If you're upset, take a minute to cool off.
  - Keep yourself focused on the task at hand.

- **Next, take a good look at your work area. Identify any hazards and eliminate or control them.**
  - If there's not enough illumination to see clearly, turn on some lights.
  - Clutter on a workbench? Clean it up.
  - Extension cords on the floor? Tape them down.
- **When the work you do requires you to use tools or equipment, make sure you know how to operate them properly.**
  - When in doubt, consult the user's manual or talk to your supervisor.
- **Always inspect hand and power tools before working with them.**
- **Don't use them if they are worn, dull or broken.**
  - Dull and worn tools require you to apply extra force.
  - The more force you use, the more likely the tool is to get "out of control", which can result in an injury.
- **Check that machine guards and other safety devices are in place and fully functional.**
  - They can't protect you if they've been damaged or removed.
- **Pace yourself as you work. "Hurrying" can result in taking risky "short cuts" that increase the chances of injuries.**
  - The "slow and steady" approach will help you keep track of what your hands and fingers are doing at all times.
  - That way you can keep them clear of sharp edges, pinch points, moving parts and other hazards, which is how you finish a task safely.
- **"Ergonomics" is the study of how we can work more efficiently and safely by reducing discomfort and fatigue.**

- **"Ergonomic hazards" are situations or processes that can force the body to move in ways it wasn't designed to move.**
  - Ergonomic hazards often don't cause injuries right away but can result in significant damage over the long term.
- **They can end up causing painful and debilitating conditions for the hands, wrists and fingers, including carpal tunnel syndrome, repetitive motion syndrome and tendinitis.**
- **To prevent these injuries, you need to avoid:**
  - Repetitive motion.
  - Working in awkward positions.
  - Applying excessive force, either manually or with a tool.
- **Repetitive motion involves making the same movements over and over again without a break.**
  - If your work involves repetitive motions, you should insert other tasks into your routine throughout the day to vary your movements.
- **If you find yourself working in an awkward position, stop what you're doing and try to find a less stressful way to get the job done. You might try:**
  - Changing your position by standing up or sitting down.
  - Repositioning the material that you're working with... turning it, raising it or lowering it.
- **Sometimes using a tool of a different size or design can help you get into a more natural posture, too.**
- **To avoid using excessive force you first need to understand the two types of "grips" your hands can make.**

- **For tasks that require strength, such as using a hammer or handsaw, we curl our fingers, palm and thumb around the object.**
  - This is called the "power grip".
  - It distributes the weight of the object evenly over the muscles and tendons of the entire hand and allows the wrist and forearms to help carry the load.
- **For a delicate touch, such as positioning a nail or twisting a tiny screwdriver, we use a "precision grip" that brings the ends of the thumb, middle and index fingers together around the object.**
- **But if we try to use the precision grip for tasks that require power, we'll end up applying excessive force to get the job done.**
  - This can injure our hands, wrists and fingers.
- **Another situation where we can find ourselves applying excessive force is when we try to "overpower" a stuck or heavy object, manually or with a tool.**
- **None of these situations are safe or healthy, so if you find yourself using excessive force while performing any task:**
  - Stop what you're doing before you hurt yourself.
  - Find a way to get the job done without straining.
- **When it comes to protecting our hands, choosing the right tool for the job can be very important.**
  - This means more than "using a hammer to drive nails" and "using a saw to cut wood".
- **Tools come in a variety of shapes and sizes.**
  - The "right" tool is the one that fits you as well as the job you're doing.
- **The shape, size and feel of the handle on a tool can be very important in preventing strains and other injuries.**

- **A handle that is too short for your hand can damage your nerves, tendons and blood vessels by placing excessive pressure on the palm.**
  - To prevent this damaging "localized pressure", you should choose tools with handles that are longer than the widest part of your hand.
  
- **To allow for a safe, strong grip, the handles should be thick enough for the end of the thumb to just cover the ends of the index and middle fingers.**
  - The handle should also be free of sharp edges or finger grooves.
  - Handles that are padded with soft or "grippy" material are often a good choice because they're comfortable, easier to control and help absorb shock.
  
- **Also make sure that the handles will allow you to keep your wrists straight as you use them.**
  - Working with your wrist in a bent position can injure the nerves, muscles and other connective tissues that pass through it.
  
- **Always try tools out before you use them, to confirm that they fit you well.**
  
- **Power tools require the same type of examination.**
  - The handles should be comfortable and "fit" your hand.
  - They should allow you to work with a straight wrist and a power grip.
  - Their power switches and safeties should be easy to operate.
  
- **Some power tools can vibrate hard enough to damage the hands that hold them.**
  - Pneumatic drills, hammer drills, grinders, chipping hammers and many other tools can vibrate excessively.



- **Over time, vibration can lead to a condition known as "hand-arm vibration syndrome".**
  - This begins with tingling and a loss of nerve sensation, and can develop into a painful and potentially debilitating condition.
  
- **To protect your hands when you're using these types of tools, you should:**
  - Limit the amount of time you work with them.
  - Avoid gripping the tool too hard.
  - Don't try to "force" the tool... let it do the work.
  - Wear gloves that are designed to absorb as much vibration as possible.
  
- **Whenever you work with hand or power tools you should monitor yourself continuously.**
  - Tingling, numbness or feelings of discomfort in your hands, wrists and fingers could indicate the start of ergonomic problems.
  - If you notice any of these symptoms, let your supervisor know about them.
  
- **One of the simplest and most effective ways you can protect your hands and fingers from injury is to put on a pair of gloves.**
  - It's important to remember that all gloves are not created equal.
  
- **You need to choose the ones that will give you the best protection from the specific hazards that you encounter while you work.**
  - Light outdoor work can cause scratches, blisters and sometimes even involve encounters with poison ivy.
  - A basic pair of cloth gloves can protect you from these hazards.
  
- **Gloves made of leather are durable enough to protect you from:**
  - Materials with rough or splintery surfaces.
  - Sparks or slag that's thrown from equipment you're using.

- **Sharp-edged tools and materials can cause painful cuts and scratches.**
  - But cut-resistant gloves made of metal mesh or similar tough materials can prevent this.
- **If you are exposed to high temperatures in your work, you should wear heat-resistant gloves that are made of aluminized fabric or other special materials.**
- **Gloves made of rubber, vinyl or neoprene can protect your skin from corrosive substances such as:**
  - Solvents.
  - Caustics.
  - Petroleum products.
- **Whatever types of gloves you wear, you need to make sure that they fit properly.**
  - Gloves that are too large will feel clumsy and can snag in machinery.
  - Gloves that are too small can tire your hands out and may tear or split as well.
- **Always inspect your gloves for rips and other defects before you put them on.**
  - If you find any problems, don't use them!
  - Get yourself another pair.
- **Remember, no one type of glove can protect your hands in every situation.**
  - And no gloves will protect you if you don't wear them!

**\* \* \* SUMMARY \* \* \***

- **To protect your hands always follow safe work practices and stay focused on what you're doing.**
- **Avoid ergonomic hazards such as repetitive motions, working in awkward positions and using excessive force when performing any task.**

- **Choose tools that "fit" you, and use them in ways that place the least stress on your hands, wrists and fingers.**
- **Never try to operate a tool that you are unfamiliar with, or that has been altered or damaged.**
- **Wear gloves that are designed to protect you from the specific hazards that you encounter in your job.**
- **Now that you understand the hazards that can affect your hands, and know how to avoid and protect against them, you can go home pain-free at the end of every day!**