

HAND, WRIST AND FINGER SAFETY IN INDUSTRIAL ENVIRONMENTS

COURSE OUTLINE

- **Our hands have the strength, dexterity and sensitivity to grasp, lift and manipulate objects of many shapes and sizes.**
 - That's because they are designed very efficiently.
- **The 27 bones that give the hand and wrist their structure are connected by muscles, ligaments and tendons.**
 - This allows the hands to move and gives them strength.
- **The nerves in the hand not only provide sensation but tell the muscles when and how to move as well.**
 - They are also responsible for the “muscle memory” that lets you do repetitive tasks like assembling and packaging products without having to think about it.
- **Blood vessels feed the tissue in the hand.**
 - The whole system is covered by layers of skin which shield your nerves, bones, and blood vessels from your environment and its threats.
 - But there's only so much that skin can do to protect that system.
- **All of the tissue in the hand and wrist is close to the surface.**
 - The bones in the hand are small.
 - Its joints can be complex.
- **So you are just one slip of a hammer away from causing serious damage to your hand, wrist or fingers.**
 - In fact, any heavy, sharp or hot object or surface can injure your skin, nerves, connective tissue and bone.
- **But it isn't just injuries from traumatic accidents you have to worry about.**
 - Your hands are also vulnerable to strains and stresses that can cause injuries gradually.
 - 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, and placing extra strain on the wrist can damage all of these over time.
 - So to keep our hands, wrists and fingers safe, we need to watch out for ergonomic hazards that can hurt us as well.
- **Hand, wrist and finger safety starts before you even begin working.**
 - It can be easy to rush into a task, especially when you're on a deadline.
 - But failing to prepare before doing a task that uses your hands, wrists and fingers can slow you down permanently.
- **Before you start any task you should first ask yourself if you're in the right "state of mind" to work safely.**
 - If you're feeling angry, you're more likely to get hurt.
 - So if you're upset, take a minute to cool off.
 - Then refocus on the task at hand.
- **Human error occurs most often when workers are distracted.**
 - From forgetting to take off jewelry to glancing away while using a power tool, being distracted can have serious consequences for your hands.
 - So before you take on a task, make sure your head is "in the game".
- **Next, take a good look at your facility.**
 - Identify any hazards that could affect your hands and do what you can to eliminate or control them.
- **For example, "pinch points" are a common problem.**
 - These are the spaces between two moving machine parts, or objects that your hands or fingers could get caught in.
 - You need to be aware of these so you can avoid them as you work.
- **In your facility, you should look out for things like...**
 - Rotating mechanical parts.
 - Chains.
 - Loose pipes.
 - Conveyor belts.
- **You'll also want to keep an eye out for any spinning equipment.**
 - It's easy to get a sleeve, bracelet or ring caught in them.

- **Be aware of any “hot” or “cold” surfaces as well, especially if you don’t have protective gloves on.**
 - One wrong move and your hands could be burned... or frost bitten.
- **If your facility has any automated machines for packaging, sealing, or other tasks, don’t assume you can trust them just because they do the work “on their own”.**
 - If they malfunction or start unexpectedly and your hands are in the way, you could be seriously injured.
- **If you’ve never worked with a tool or completed a specific task before, ask a coworker or supervisor to walk you through it.**
 - Trying to perform a new task often has a “learning curve” when you are more likely to make mistakes, which can lead to a hand or wrist injury.
 - So it’s best not to do something on your own the first time.
- **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 never forgetting that safety is your number one priority.
 - When in doubt, consult your tool user’s manual or talk to your supervisor.
- **You should always inspect hand and power tools before working with them. Look for...**
 - Dents.
 - Scratches.
 - Frayed wires.
- **Never use a tool if it is...**
 - Worn.
 - Dull.
 - Broken.
- **You might be tempted to use a dull tool instead of hunting down a new one.**
 - But 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.

- **For tools or equipment that use guards or other safety devices, check that they are in place and fully functional.**
 - You might feel like a guard is slowing you down, but a little additional time is a small price for your hands' safety.
 - Guards and other safety devices can't protect you if they've been damaged or removed.
- **When you begin to work, remember to pace yourself.**
 - "Hurrying" can result in taking risky "short cuts" that increase the chance of an injury.
 - A "deliberate and steady" approach will help you keep track of what your hands and fingers are doing at all times.
- **That way you can finish a task safely by keeping your hands clear of...**
 - Sharp edges.
 - Pinch points.
 - Moving parts.
 - Other hazards.
- **When you're lifting materials, pieces of equipment, or other heavy items, take your time and make sure you have a good grip on the load before pick it up.**
 - The closer your hands are to the bottom of the object, the better.
- **Then, bend your knees and use your legs to lift.**
 - Carry the load with both hands, and close to your body.
 - If it starts to feel too heavy, or your fingers are slipping, stop immediately and set it down.
 - The last thing you want is to strain a muscle or hurt your hand trying to catch a falling object.
- **Sometimes, despite all the precautions you take, you can still injure your hand.**
 - If you do, seek medical care immediately.
- **Even if the injury seems minor, it could become more severe as time goes by.**
 - The sooner you are treated, the better.
- **"Ergonomics" is the study of how we can work more efficiently and safely by minimizing any discomfort and fatigue.**
 - "Ergonomic hazards" are situations or processes that can force the body to move in ways it isn't designed to.

- **Ergonomic hazards often don't cause immediate injuries.**
 - But over time they can result in painful and debilitating conditions such as carpal tunnel syndrome, repetitive motion syndrome and tendinitis.
- **To prevent these injuries, you need to avoid things such as...**
 - Working in awkward positions.
 - Repetitive motions.
 - Applying excessive force, either manually or with a tool.
- **“Repetitive motion” is 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 the movements that you make.
 - 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.
- **When you're using your hands, keep your wrists as straight as possible.**
 - This “neutral” position will allow the tendons to slide easily through their “sheath”, preventing strain and damage.
- **To achieve a “neutral” position, you may need to change your overall body position by standing up or sitting down.**
 - Or you could reposition the material that you're working with... turning it, raising it or lowering it.
 - Sometimes, using a differently sized or designed tool can also help you get into a more natural posture.
- **To avoid using excessive force when you're working with a tool, 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, you should curl your 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.
 - It also allows the wrist and forearms to help carry the load.
- **When you need a delicate touch, such as when positioning a nail or twisting a small screwdriver, you'll want to use a “precision grip”.**
 - This grip 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 will end up applying excessive force to try and 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.
- **Choosing the right tool for the job can be very important when it comes to protecting our hands.**
 - It means more than "using a hammer to drive nails" and "using a saw to cut wood".
- **Tools come in all 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 nerves, tendons and blood vessels by placing excessive pressure on the palm.
 - To prevent this type of damaging "localized pressure", you should choose tools with handles that are longer than the widest part of your hand.
- **For a safe, strong grip, the handles should also be thick enough for the end of the thumb to just cover the ends of the index or middle fingers.**
 - Handles should be free of sharp edges or finger grooves as well.
- **Handles that are padded with soft or "grippy" material are often a good choice.**
 - They are comfortable, easier to control and help absorb shock.
- **Make sure that the handles on your tools 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.
 - So be sure to try tools out before you use them, to confirm that they fit you well.

- **Power tools require the same type of examination as hand tools. Make sure that...**
 - The handles are comfortable and "fit" your hand well.
 - They allow you to work with a straight wrist and a power grip whenever possible.
 - Their power switches and safeties are easy to operate.
- **Some power tools can vibrate hard enough to damage the hands that hold them.**
 - Hammer drills, grinders, chipping hammers, chainsaws, hedge trimmers as well as many other tools have this potential.
- **Over time, these vibrations can lead to a condition known as "hand-arm vibration syndrome".**
 - This begins with a "tingling" and 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.
 - Try not 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 immediately.
- **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.**
 - But it's important to remember that not all gloves are 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.
- **For instance, light packaging work can cause scratches and blisters.**
 - But you only need a basic pair of cloth gloves to protect you from these hazards.

- **Gloves made of leather are more durable and can protect you from...**
 - Materials with rough or splintery surfaces.
 - Sparks or “slag” that is thrown from the equipment that you're using.
- **Sharp-edged tools and materials can cause painful cuts and scratches.**
 - Cut-resistant gloves made of metal mesh or similar tough materials can guard against these problems.
- **If you are exposed to high temperatures in your facility, you should wear heat-resistant gloves made of aluminized fabric or other special materials.**
- **Gloves made of rubber, vinyl or neoprene can protect your hands from corrosive substances such as...**
 - Organic fluids.
 - Lyes.
 - Petroleum products.
- **Disposable gloves made of latex, nitrile and polyethylene can shield you from biological hazards such as...**
 - Germs.
 - Bacteria.
 - Viruses.
- **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, and can 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.**
 - No gloves will protect you if you don't wear them!

*** * * SUMMARY * * ***

- **Protect your hands by preventing accidents before they happen. 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 you're performing any task.**
- **Choose tools that "fit" you, and the task that you're doing. 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, wrists and fingers, and know how to avoid and protect against them, you can go home pain-free at the end of every day!**