Expectations

VIDEO ON

QUESTIONS AT THE END OF EACH SESSION

DISCUSSION AT THE END OF PRESENTATION
Introduction

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Agenda

1. Why is Hand Safety Necessary?
2. Hand Safety Hazards
3. Hand Safety Protective Measures
4. Real World Scenarios
5. Questions
Why is Hand Safety Necessary?
Things to Consider

- Hand injuries send over a million workers to the ER every year in the US (CDC.gov)

- Hand cuts and lacerations create about 110,000 days-away-from-work cases (US BLS)

- Average direct cost of (NSC):
  - A laceration = $10,000
  - Stitches = $2,000
  - Severed tendon = $70,000

- These costs do not include indirect costs, such as time away from work or retraining
Why Hand Safety Matters

Keep The Gloves On!

Hand injuries account for 1/3 of all injuries at work, 1/3 of chronic injuries, 1/4 of lost working time, and 1/5 of permanent disability.

**Top Three Hand Injuries**

- **Amputations**
- **Breaks**
- **Lacerations**

70% due to workers not wearing gloves
30% due to workers wearing inappropriate gloves

10% of all U.S. emergency-room visits by workers per year are for hand injuries.

37,900,000
injury-related emergency room visits in the US each year

3,903,700
hand related injuries

Hand injuries cost companies more annually than any other workplace injury in the U.S.

$740 MILLION


Emergency Room Visits Per Year

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Cost of Hand Injuries

Severed Tendon: > $70,000
Direct cost of a laceration: $10,000
Stitches: $2,000 plus indirect
Butterfly: $300
Wearing the correct glove for the job: $30

The average claim for a hand injury exceeds $6k!

The Importance of Hand Safety

The Importance of Gloves

70%
How much wearing the proper gloves for a job can lower the risk of acute occupational hand injuries.

Factors that contribute to glove comfort:
- Fit
- Flexibility
- Dexterity
- Tactile sensitivity

110,000 HOURS
Time lost due to hand injuries annually

Source: https://hsi.com/blog/handsafety-and-injury-prevention
Questions?
Hand Safety Hazards
## Top Hand Injury Hazards

<table>
<thead>
<tr>
<th>Pinch points</th>
<th>Sharp objects</th>
<th>Trips and falls</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A point where hands or fingers can get pinched</td>
<td>• Hazards include lacerations, punctures, and amputations</td>
<td>• Instinctively use hands to brace ourselves</td>
</tr>
<tr>
<td>• Example: power presses, powered doors, robotic machines</td>
<td>• Example: Hand tools with blades, saws, scissors</td>
<td>• Examples: poor housekeeping, working from heights</td>
</tr>
</tbody>
</table>

https://www.safeopedia.com/top-10-hazards-to-your-hands-and-how-to-protect-against-them/2/7594
# Top Hand Injury Hazards

<table>
<thead>
<tr>
<th>Repetitive strain injuries</th>
<th>Defective equipment</th>
<th>Rotating/moving equipment hazards</th>
<th>Extreme cold</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tasks that are performed over and over</td>
<td>• Defective equipment includes improper grounding, cracked tool blades, etc.</td>
<td>• The hands usually contact a rotating or moving piece of equipment first</td>
<td>• Extremities are vulnerable to frostbite</td>
</tr>
<tr>
<td>• Most common strain injury: Carpal Tunnel Syndrome</td>
<td>• Inspect equipment prior to each use to ensure it’s effective</td>
<td>• Don’t wear loose fitting clothes or jewelry</td>
<td>• Protect hands with insulated gloves and include chemical hot pack in first aid kits</td>
</tr>
</tbody>
</table>

[https://www.safeopedia.com/top-10-hazards-to-your-hands-and-how-to-protect-against-them/2/7594](https://www.safeopedia.com/top-10-hazards-to-your-hands-and-how-to-protect-against-them/2/7594)
# Top Hand Injury Hazards

<table>
<thead>
<tr>
<th>Line of Fire Hazards</th>
<th>Chemical Hazards</th>
<th>Negligence</th>
</tr>
</thead>
</table>
| • Part of the body is in front of an object that can move and potentially make contact  
  • Can include hitting a thumb with a hammer, or being speared by a fork on a forklift | • Chemicals can cause burns and irritations, among other injuries  
  • Wear appropriate PPE when working with chemicals (gloves, aprons, safety glasses, etc.) | • Distraction and loss of concentration; repetitive movements  
  • Education and training, including TBTs and JHA review, can remind workers what to look out for |

[https://www.safeopedia.com/top-10-hazards-to-your-hands-and-how-to-protect-against-them/27594](https://www.safeopedia.com/top-10-hazards-to-your-hands-and-how-to-protect-against-them/27594)
Questions?
Hand Safety Protective Measures
Hierarchy of Controls

- **Elimination**: Physically remove the hazard
- **Substitution**: Replace the hazard
- **Engineering Controls**: Isolate people from the hazard
- **Administrative Controls**: Change the way people work
- **PPE**: Protect the worker with Personal Protective Equipment
Hierarchy of Controls - Elimination

Avoid hazards and risk before it occurs

Implementation of hazard identification assessment programs
  • Proactive
  • Describes details and hazards of a task

Company-wide buy-in is required
  • Incentive programs help (proactively based)
Hierarchy of Controls - Substitution

Replace older equipment that do not have as many safety features

Unnecessary wires, no machine guarding, etc.

Ergonomically designed equipment reduce risk of repetitive strains

Is there a more functional, lighter model that can reduce hazards?

Hierarchy of Controls – Engineering Controls

Is the equipment identified and guarded?

Does it clearly display where the hazards are?

Examples:

– Light curtain to stop the equipment if a hand passes through

Hierarchy of Controls - Administrative Controls

- Training, procedures, and policies
  - Specific to hand safety

- Examples:
  - No jewelry policy
  - 100% glove policy
  - PPE training
    - When PPE is necessary;
    - What PPE is necessary;
    - How to properly don, doff, adjust, and wear PPE;
    - The limitations of the PPE; and,
    - The proper care, maintenance, useful life and disposal of the PPE.

- Training exercises
  - During training, ask employees to attempt to perform tasks without the use of their fingers and/or hands

Hierarchy of Controls – Personal Protective Equipment

Last line of defense

Only necessary when all other controls cannot do the job

Gloves

The Importance of Gloves

• Goes beyond finding the right fit and form
• Which type to pick?
• Certain gloves are right for certain jobs
• Different gloves offer different types of protection
Factors to Consider

- Type of chemical handled
  - Nature of contact
  - Duration of contact
- Area requiring protection
- Grip requirements
- Thermal protection
- Size and comfort
- Abrasion/resistance requirements
Gloves - Four Categories

• Leather, canvas, metal mesh
• Fabric and coated fabric
• Chemical and liquid-resistant
• Insulated rubber
Cotton/Fabric Gloves

• Most common glove for general work
• High level of protection is not needed
• Thin and lightweight
• Used to prevent minor scrapes/splinters
• Do not prevent punctures, burns or cuts

https://www.ehsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Coated Fabric Gloves

- Provide a bit more protection from punctures, cuts, and chemicals than cotton gloves
- Common types of coating include nitrile, PVC, and polyurethane
- Coating depends on the job

https://www.ehsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Leather Gloves

- Provide good grip, insulation, and durability
- Thicker than regular fabric
- Offer higher levels of protection
- Tend to dry, crack, or shrink in heat
- Not ideal for working with heat

https://www.ehsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Latex, Rubber, or Plastic Gloves

- Most commonly used in medical scenarios or labs
- Protect from biohazards, chemicals, etc.
- No protection against punctures or heat resistance
- Not ideal for working with sharp tools, flames, or abrasive surfaces

https://www.ehsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Kevlar Gloves

- Ideal for industrial work
- Lightweight
- Allows movability but is strong
- Resists cuts and punctures
- Used as a lining in other types of gloves

https://www.ehsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Butyl Rubber Gloves

- Best for working with chemicals
- Don’t absorb liquids
- Can withstand hot and cold, abrasions, oxidation, and ozone corrosion
Vibration-Resistant/Impact-Resistant Gloves

- Absorb most of the impact that vibrating tools/equipment produce
- Less energy is transferred to the hand
- Most often used in fabrication, automotive, and construction industry

https://www.ehsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Puncture Resistant Gloves

- Designed to resist cuts/punctures
- Deflects sharp objects
- Most commonly used in construction, food services, and warehouses

https://www.ohsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Aluminized Gloves

- Best when working with heat
- Commonly used in welding, foundries, and labs
- Protect hands from temperatures up to 2000 degrees Fahrenheit

https://www.ehsinsight.com/blog/examining-the-different-types-of-work-safety-gloves
Choose the Correct Glove

Identify and know the hazards at the job

Choose hand protection accordingly
Protective Glove Care

• Inspect gloves before each use

• Look for:
  • Tears
  • Punctures
  • Defects

• Fill glove with water; ensure no water leaks

• Discolored or stiff gloves may reveal deficiencies

• If a glove has any impairment, discard and replace the glove

Questions?
Real World Scenarios
Joe

- Carpenter - a nail was fired through a wall by another worker
- Needed surgery to repair bones
- Out of work for a month
- What went wrong?
- What are some solutions?

Source: https://www.ehstoday.com/archive/article/21911156/solutions-to-handinjury-cases
Ralph

• Wheeled a hand truck with large, heavy boxes down a ramp
  • Went down the ramp backward
  • Lost control of the hand truck
  • Hand moved from the handle to the side rail of the hand truck
  • Hand got smashed in the doorway

• Several bones were broken

• Out of work for several weeks- returned to alternate work

• Permanent damage to his hand

• What went wrong?

• What are some solutions?

Source: https://www.ehstoday.com/archive/article/21911556/solutions-to-handinjury-cases
Louis

• Reached across the path of a 15-inch saw blade
  • Cleaning up the work area, removing materials stuck in saw blade
  • Inadvertently activated saw
  • Lost two fingers, severe lacerations

• Returned to work permanent disability

• What went wrong?

• What are some solutions?

Source: https://www.egstitoday.com/archive/article/21011156/solutions-to-handinjury-cases
Thank You

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Thank you!

Learn more and keep the conversation going at nsc.org/divisions