

Slip, trip and fall accidents prevention training

I. Introduction

Slip, trip and fall accidents are serious business. They can occur at any time, to anyone, anywhere. Visualize the following scenarios: a piece of paper blown off a desk; a cube of ice missing a cup; a dripping umbrella carried through a building foyer; or an electrical cord strung across a walkway.

All these seemingly benign scenarios can lead to one of the main causes of workplace accidents: a slip or trip, and then, a fall.

A fall, even from a low level, can result in permanent disability or death, so it is no surprise that there are numerous safety standards and regulations designed to prevent these types of accidents. There are also many practical steps that can be taken to identify, correct, and mitigate slip, trip, and fall hazards. You will learn about them in this course.

Why It Matters

According to a National Safety Council report from 2000, over nine million slip, trip, and fall accidents occur each year, resulting in an estimated \$70 to \$100 billion in lost-production, medical, legal, and insurance costs. The average cost per slip and fall accident was roughly \$20,000. The high frequency of slip, trip, and fall accidents is due to the fact that the risk is not limited by demographics or location. In fact, almost anyone runs the risk of falling anywhere unexpectedly. All that is required are the right circumstances.

According to the Bureau of Labor Statistics, slips, trips and falls accounted for 19% of all workplace accidents in 2006 and nearly 65% of all lost workdays. (CDC 2007)

- Slips, trips and falls are the second leading cause of workplace fatalities behind vehicle accidents. (CDC 2007)

Slips and falls are the most common type of customer injury in public places.

- Among older adults, falls are the leading cause of injury deaths. They are also the most common cause of nonfatal injuries and hospital admissions for trauma. (CDC 2006)
- In 2005, 15,800 people aged 65 and over died from injuries related to unintentional falls and about 1.8 million were treated in emergency departments for nonfatal injuries from falls, of which more than 433,000 were hospitalized. (CDC 2008)

Fall Dynamics

Forces Involved in a Fall

One of the reasons that falls are so injurious is the effect of gravity. Gravity is a force to be reckoned with. During any fall, it causes acceleration toward the earth, which can result in large forces being applied to the body on impact. Impact forces are directly related to the height from which the fall occurs. Due to gravity, the impact force of a fall increases by 30 times for every foot of height in the fall. To put this in context, review the examples below of impact forces incurred for a 150 lb person:

A fall from a standing position onto the knees will result in 6,000 pounds of force at impact (40 times the body weight).

The “banana peel” slip and fall, often seen in cartoons, will generate 13,500 pounds of force on impact (90 times the body weight).

Factors Affecting Injury

Although these forces may appear to be extremely high, your body is capable of absorbing a certain amount of force without significant or permanent injury. However, your body’s ability to absorb the force and avoid injury will depend on certain factors related to the fall.

Common injuries

Arm and wrist fractures

Spinal injuries

Hip fractures

Head trauma and concussions

Dislocated shoulders

Ankle and knee sprains

Broken ribs

Bruises and contusions

A simple trip can result in a serious fall. A trip is caused when an object stops a person's foot, or interrupts or redirects its motion resulting in a shift in balance toward the direction of travel. A slight change in elevation or an obstacle as little as three-eighths of an inch can cause a trip and fall.

Obstacles

Electrical cords

Tools

Trash

Empty pallets

Packaging materials

Improperly stored work materials

Furniture legs or edges

Open file drawers

A broken floor tile

A rolled carpet

Floor mats

Door thresholds

Nails protruding from wood floors

Sidewalk cracks

Door jambs

The Occupational Safety and Health Administration (OSHA) has developed and currently enforces standards to prevent trip hazards. These standards are most commonly referred to as 'Housekeeping Standards.' All employees should work to ensure these standards are met or notify a supervisor if an issue occurs that is beyond his or her control

1910.22a1 All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.

1910.22a3 To facilitate cleaning, every floor, working place, and passageway shall be kept free from protruding nails, splinters, holes, or loose boards.

1910.22 Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard.

1926.25a during the course of construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.

Housekeeping

In keeping with the OSHA standards, all employees should aim to use good housekeeping procedures and work planning to prevent trips in the workplace. Let's look at some basic work practices:

Route hoses and electrical cords away from walkways

Use tape or cord covers to secure electrical cords that must be placed across walkways

Hang hoses, cords, and air lines on hooks when not in use

Keep tools stored in boxes or in workbelts

Cone or tape off work areas where placement of materials on the ground is necessary

Keep work items stored in designated areas such as shelves, closets, bins or in marked areas

Keep file drawers closed when not in use

Place trash in receptacles

Floor Maintenance

The condition of a walking surface can also contribute to trips. Of course, not all employees have the authority or ability to perform repairs on defective walking surfaces or provide input in the flooring-surface design. However, all employees do have the ability and responsibility to identify and report conditions that may put themselves or others at risk.

Report any of the following floor problems to a supervisor or maintenance staff:

Defective lighting in walkways or parking lot

Rolls or tears in a carpet

Loose or missing boards and protruding nails in wooden flooring

Loose or cracked floor tiles or uneven tile placement

Loose thresholds in doorways or at floor surface changes

Cracks or holes in parking lot pavement

Damaged or unpainted parking bumper

Footwear

Wearing appropriate footwear is another simple method of trip prevention. The safest shoe type is a closed-toe, closed-back, and low-heeled shoe. Let's review more details.

Sandals and other open-toe shoes create a surface that can catch on protrusions while walking. Items such as walkway cracks and stair steps can catch on an open-toe shoe and cause a trip.

High-heeled shoes are probably the most dangerous type of shoe. High heels create a large area that can catch on uneven surfaces. In addition, the thinner the heel, the less stable the landing surface for the foot. A thin heel base can easily slip mid-step, causing a twisted ankle and a fall.

Now let's look at the second common cause of a fall, a slip. To understand how a slip occurs, we must look at the mechanics of a step. There are three stages to an individual's walking step: touchdown, full load, and push-off. During the step, the force of one's weight pushes against the ground at varying angles. Normally, the friction between the floor surface and the sole of the shoe resists the various forces and keeps the foot from slipping. When the horizontal (i.e. forward) force of a step is greater than the friction between the walking surface and shoe sole, a slip takes place. Floor surfaces that can tolerate higher levels of force are known as slip-resistant surfaces.

The Americans with Disabilities Act Access Board and OSHA have both developed standards requiring that work surfaces, general access areas, and wheelchair ramps be slip resistant.

Unfortunately, a slip-resistant walking surface is not a guarantee against slips. Certain conditions can reduce the slip resistance of a surface and certain practices can increase the risk of slipping. When a reduction in slip resistance is combined with poor practices, a slip and fall becomes almost inevitable.

All employees can use good housekeeping procedures and work planning to prevent slips in the workplace. Some key work practices include the following:

Clean up spills of oil and water immediately

Place floor warning signs in areas that typically become wet during the day

Sweep up powders and dust on a regular basis

Pick up trash or debris from the floor and throw it away

Do not allow trash cans to overflow

Place foot-drying mats near doorways, water fountains, etc.

Place wet umbrellas in stands at the point of entry or use umbrella sheaths to prevent dripping on floors

Use lids on drink containers to minimize spills in the workplace

Floor care is extremely important in businesses like restaurants, vehicle maintenance garages, and banks. Although all employees have the responsibility to follow general housekeeping rules, overall floor condition and upkeep may be carried out by a janitorial service. Nonetheless, it is important to be aware of proper floor care procedures that will help reduce the risk of slip and fall accidents.

Although many slips, trips, and falls occur on level surfaces, many also happen on stairs, steps, and surfaces that are short distances from the ground. Remember, falls from as low as two feet can generate impact forces in excess of 60 times your body weight. Follow these stair-safety tips to reduce your risk of accidents.

Taking more than one step going up or down stairs requires more push force against the step and increases the risk of a slip.

It makes sense to look for shortcuts when doing daily tasks. Unfortunately, taking certain shortcuts can significantly increase your risk of injury. For example, jumping from low-level surfaces between one- and four-feet high, such as mobile equipment, ramps, loading docks, or the tailgate of a pick-up truck, can generate impact forces of up to 120 times your body weight. While taking such shortcuts may often be harmless, there is always a risk that something will go wrong. An incorrect landing, a slightly turned

ankle, or a small body rotation can result in an unexpected and serious injury. Use common sense and slow down -- it could save you time, and pain, in the long run.

Every employee has the responsibility to practice the good housekeeping procedures and guidelines presented in this course. To report a slip or trip hazard or related maintenance issue, please use the contact information on this page.

Slips, trips, and falls are the second-leading cause of workplace injuries and fatalities and account for nearly \$100 billion in lost production, medical, legal, and insurance costs annually.

Injuries resulting from falls can be minor or severe depending on the height of the fall and factors related to the way that your body absorbs the fall.

A trip is caused when an object stops a person's foot or interrupts or redirects its motion resulting in a shift in balance toward the direction of travel.

A slip occurs when the horizontal force of the step exceeds the opposing force of friction between the surface and sole of the shoe.

Contributors to slips include "barriers" on the walking surface (e.g. liquids, powders, or trash), a high pace of travel, a change in the walking surface, or improper footwear.

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Trips and slips can both be avoided by employing good housekeeping practices, maintaining floors in good condition, selecting appropriate footwear, and walking safely.

Stairs and low working platforms also account for a significant number of fall accidents. Many of these are preventable by avoiding unnecessary risks such as leaping or jumping when stepping carefully is more practical.

Wearing closed toe shoes- TRIP PREVENTION

Reference

www.nsc.org/safety_home/resources

Quiz

1. employee's direct responsibility in preventing slips.

- *leaning up small water spills

- Placing trash in receptacles

Sweeping up debris, such as dust, regularly

Installing slip-resistant flooring

Using umbrella sheaths on wet umbrellas

if you witness a potential slip risk which is beyond your control or responsibility, you should immediately inform management.

Distinguish the slip and trip prevention methods in the following list.

2. slips account for ____% of workplace injuries

19%

3. Average cost of slip accident

\$20,000

4. Gravity causes the impact force in a fall to increase by 30 times your weight per foot of fall. A person who falls 2 feet can incur an impact force of ____ times their body weight

60

5. Causes of trips

Inconsistency surface

Obstacle in path

A barrier between sole of shoe and walking surface

6. Which of following are methods to prevent trips and slips

Good housekeeping

Floor maintenance

Correcto footwear

All

7. Potential cause of slip and fall

Pothole

Extension cord pulled tight across aisle

A piece of lettuce on floor

None

8. floor surface to resist step force is called?

Slip resistance

9. Jump for truck

Roll ankle

Twist torso

Incorrect land

all

10 using stair safe?

Avoid handrail

Jump third to last step

take your time

Carry many items