# Slips, Trips, Falls

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# Slips Trips and Falls

HOW THEY HAPPEN AND WHAT WE CAN DO ABOUT IT.

## Definition

Slip – too little friction or traction between a person's feet and the walking surface.

Trip – a person's foot contacting an object causing them to lose balance.

Fall – the result of a slip or trip.

## Slip Dynamic

Slip is caused by slippery surface and compounded by footwear.

Two types:

- Front heel slips and person falls back
- Rear toe or ball of foot slips back and person falls forward

## Definition

Slip resistance involves the interaction of four factors:

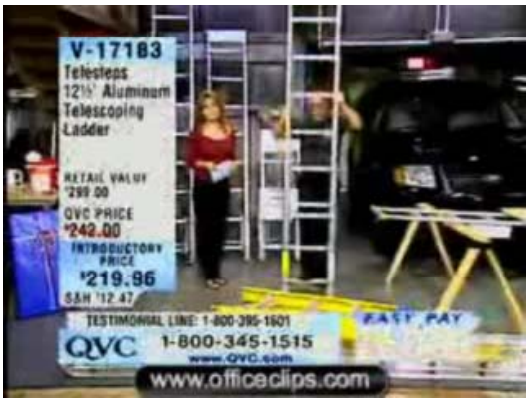
- material and finish of floor
- footwear material bottom and condition
- environmental contaminants
- gait dynamics

No commonly accepted standard

## Trip Dynamic

Trip caused by object or uneven surface.

Feet stop on contact, but the body continues its move forward due to momentum




## Impact

- Typically 25% of all Workers' Compensation claims in Canada.
- Usually one of the top two causes of workplace injury (after MSI)
- Most falls occur on level ground
- Falls on stairs and from elevation usually cause more serious injuries.

## Causes

- Debris
- Spills
- Housekeeping
- Ice and snow

## Causes

- Uneven pavement
- Floor surface
- Unsafe acts
- Improper tools

## Underlying Causes

- Lack of Supervision
- Poor Housekeeping practices
- Improper Inspections
- Inadequate Investigations

## Underlying Causes

- Improper Hazard Identification
- Improper Personal Protective Equipment (PPE)
- Production vs. Safety
- New or non standard workers

## Prevention

Supervision:

- Observe workers
- Correct unsafe working practices and conditions
- Risk Assessments
- Mitigation Strategies

## Prevention

Housekeeping:

- Clean work area
- Consider cleaning products and residues
- Adequate storage area
- Stress importance of good work habits
- Preventative Maintenance Program

## Prevention

Inspection:

- Observe workers
- Consider working conditions
- Floor surface
- Footwear
- Housekeeping

## Prevention

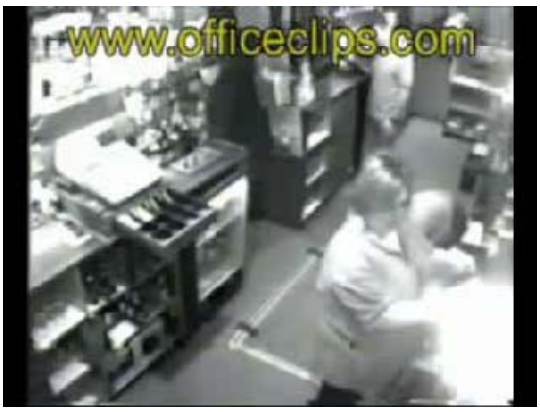
Investigation:

- Look at first aid reports for trends
- Consider underlying causes
- Unsafe acts, conditions, procedures
- Consider start, middle and end of incident
- Consider near misses
- Mitigation Strategies

## Prevention

Hazardous Investigation:

- Consider potential risks
- Consider flooring options
- Loose mats
- Implement Mitigation Strategies and Plans



## Prevention

PPE:

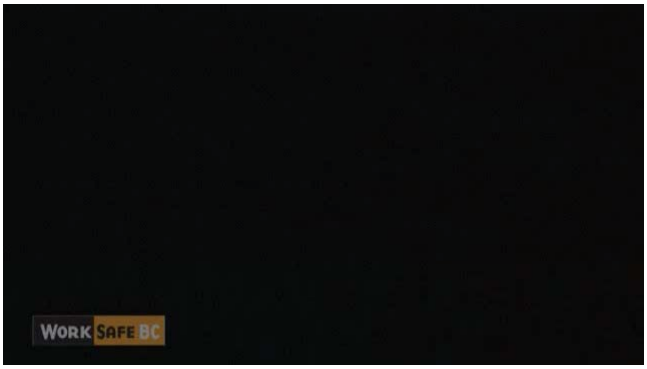
- Footwear
- Trip hazards – laces, cuffs
- Non slip soles if required
- Mitigation Strategies

## Prevention

Production:

- Time constraints
- Lost time = lost productivity
- Reward strategies
- Change the culture

## Fall through opening




## Prevention

New Workers:

- Advise on procedures
- Hazard awareness
- Observe workers
- PPE

## Stairs

Special considerations:

- Tread risers height and depth
- Handrail
- Tread wear and surface type
- Lighting
- Worker education

## Stairs

- 70% of stair incidents occur on the top or bottom three steps
- Design factors (angle, tread and riser height, riser uniformity, etc.) are crucial but most stairs should meet building code requirements.
- All stairs should have handrails in good repair.
- Many of the same causation factors as level floor but injuries may be more severe so proper cleaning and maintenance is important.

## Physical Trip Causes

Stairs:

- when a person's foot lands on a surface lower than expected they land harder and may fall forward
- when a person's foot lands on a surface that is lower to one side than the other their foot can twist causing them to fall forward or sideways.

## Physical Trip Causes

Trips are causes by uneven surfaces:

- Differences of as little as 3/8" difference in adjacent surfaces can cause a person to "stub" his toe causing a trip forward.

## Footwear

No objective standards

WCB 8.23(1) states: “If a workplace has slippery surfaces, appropriate non-slip footwear must be worn.” But it does not define “non-slip”.

## Footwear

Sole materials

- Generally softer is better but wears faster (like a performance tire)
- Tread pattern
- heel breast should be square
- tread pattern should generally run across the direction of travel and cover the whole sole and heel
- Avoid patterns with enclosed areas (they trap liquids)

Condition

## Gait Dynamics

People tend to unconsciously adjust their stride to the conditions observed or experienced.

One of the "strategies" to recover from a fall is to quickly react by moving your feet under your falling body trunk – younger and fitter people do this better.

## Maintenance Issues

- Lighting
- Cleaning
- Maintaining floor surfaces
- Removing snow and ice

## Actions that Can Cause Trips and Slips

- Running or walking too fast – feet land harder and require greater friction to avoid slipping.
- Distractions – talking, carrying loads that block vision
- Not using handrails

## Actions that Can Cause Trips and Slips

- Wearing sunglasses in low-light (usually indoors) areas
- New prescription eyewear or multi-focal lenses
- Adapt or adopt – people take the shortest path between two points unless forced by barriers – these “natural” paths must be kept as safe as designated walkways or blocked to inhibit use.

## Lighting

- Visual acuity reduces with age
- 22 lux (2fc) minimum for outside areas, 50 – 100+ lux (5 – 10 f.c.) for indoor pathways and stairs where no work is performed.
- Transitions between light and dark areas should be made as gradual as possible to allow eyes to readjust.
- Shadows can hide tripping hazards.

## Cleaning

- Spills, especially in areas that are not frequently used, should be cleaned up promptly.
- Mops tend to spread dirt around – brushing or powered scrubbing equipment is better.
- Dirt build-up can quickly negate the benefit of high traction surfaces.

## Snow and Ice Strategies

- Snow and ice removal should be conducted according to winter mitigation strategy.
- Impractical to have freshly shoveled/salted/sanded walkways 24/7 during a snowfall.
- Overall goal is to recognize ice or snow conditions early and keep main paths reasonably clear

## Snow and Ice Strategies

- Sand/salt should be available for workers to fix critical areas like entrances.
- Employees may have to change usual travel paths to stay on cleared walkways.
- Unsafe areas should be blocked to traffic

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