How to Prevent Slips, Trips & Falls (STFs), Strains, Sprains and Remote Work Safety

SOMERSET COUNTY JOINT INSURANCE FUND

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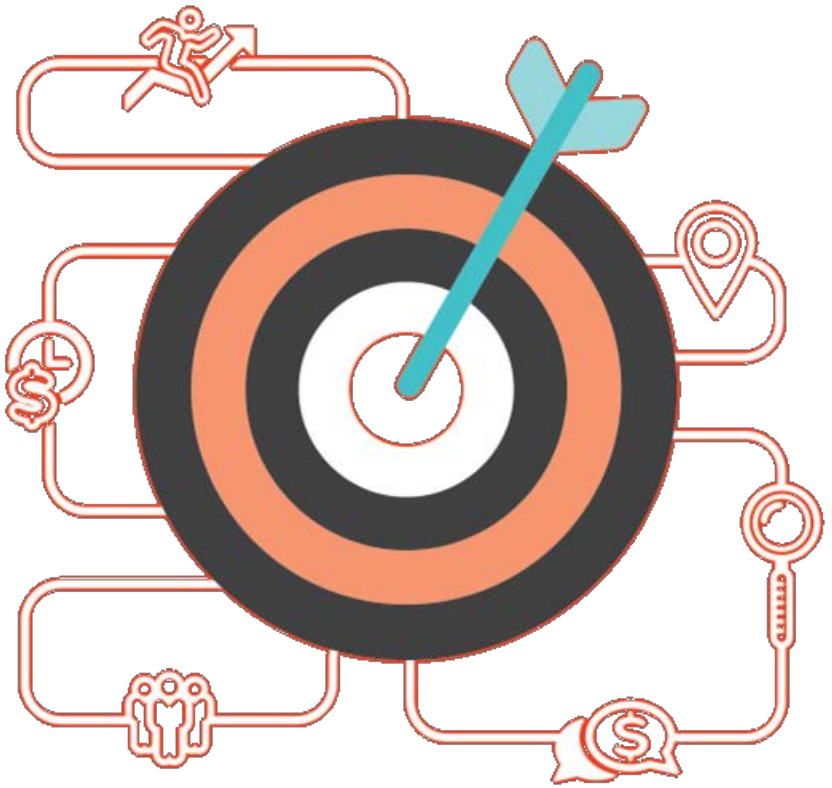
Slips, Trips & Falls (STFs)

Identification and Prevention

Objectives

- Identify potential slips, trips & falls (STFs)
- Definitions
- Causes of STFs
- Risk factors
- Prevention/minimization



Hazards are Everywhere

- Wet floors, an open drawer, slippery shoes, an icy walkway – all can lead to serious, painful injuries in the workplace. Protect yourself and your co-workers by learning how slips, trips and falls occur and what you can do to report or clean up hazards.
- Slips, trips and falls account for more than 20% of all non-fatal occupational injuries involving days away from work.
- Slips, trips and falls are one of the leading causes of accidents in the workplace, accounting for at least 20% of all worker's compensation claims.

Frequency of STFs

- Slips, trips & falls make up majority of general industry accidents (USDOL)
  - 15% of all accidental deaths; 2nd leading cause behind motor vehicles
    - ~12,000/year
  - One of most frequently-reported injuries
    - ~25% of reported claims/year
  - Over 17% of all disabling occupational injuries result from falls
- Most could have been prevented

Costs of STFs

- To the employee:
  - Lost wages and out-of-pocket expenses
  - Pain
  - Temporary or permanent disability
  - Reduced quality of life
  - Depression
  - Death

Costs of STFs

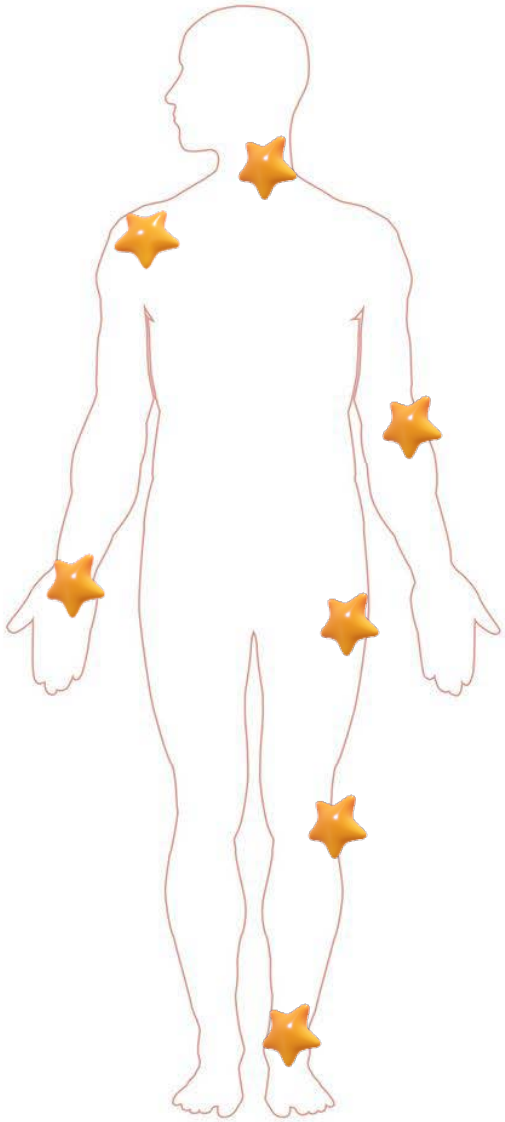
- To the employer:
  - Loss of productivity and business
  - Increased industrial insurance premiums
  - Costs associated with training replacement worker

STFs Injuries

- Sprains and Strains
- Bruise and Contusions
- Fractures
- Abrasion and Lacerations

Typical Injury Sites

- Knee, ankle and/or foot
- Wrist and/or elbow
- Back and/or shoulder
- Hip
- Head



Definitions of STFs

- **S**lips
  - Too little friction or traction between feet (footwear) and walking/working surface, resulting in loss of balance
- **T**rips
  - Foot or lower leg hits object and upper body continues moving, resulting in loss of balance
  - Stepping down to lower surface and losing balance
- **F**alls
  - Occurs when too far off center of balance
  - Two types
    - Fall at same level
      - Fall to same walking or working surface, or fall into or against objects above same surface
    - Fall to lower level
      - Fall to level below walking or working surface

Causes of Slips

Wet product or spills on smooth floors or walking surfaces

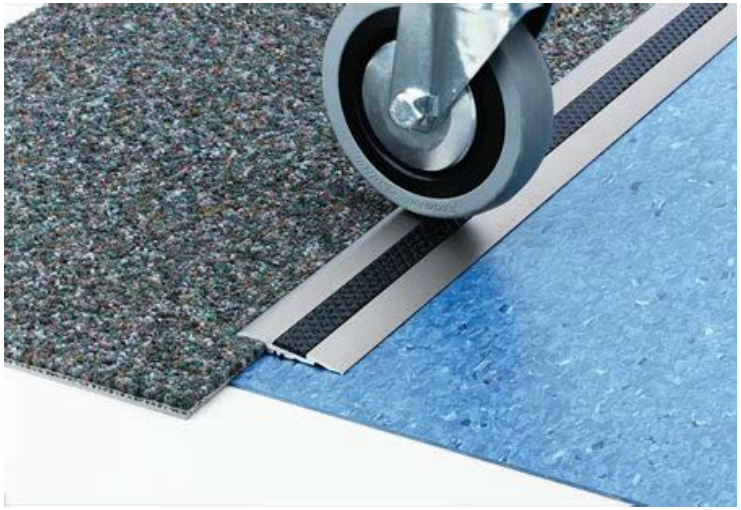
- Water
- Mud
- Grease
- Oil
- Food
- Blood

Dry product or spills making walking surface slippery

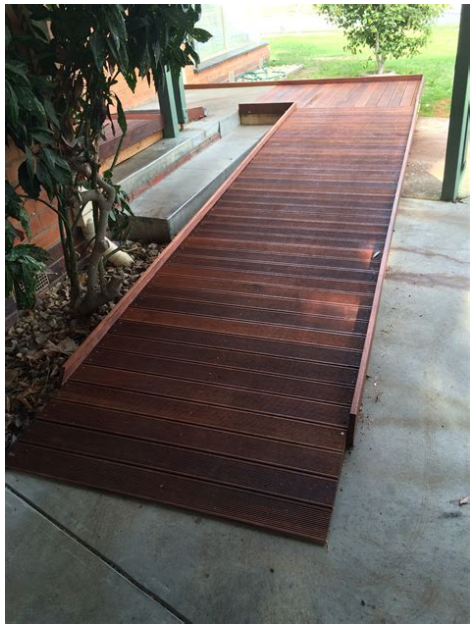
- Dusts
- Powders
- Granules
- Wood
- Plastic wrapping

Causes of Slips

- Highly-polished floors can be slick even when dry
  - Concrete
  - Marble
  - Ceramic tile
- Freshly-waxed surfaces
- Transitioning from one surface to another
  - Carpeted to vinyl
  - Grid to smooth concrete
  - IT Cable Covers



Causes of Slips



- Sloped walking surfaces
- Loose, unanchored rugs or mats
- Loose floorboards or shifting tiles
- Wet, muddy or greasy shoes
- Stairs, ramps and gang planks without skid- or slip-resistant surfaces

Causes of Slips

- Metal surfaces
  - Dock boards and dock plates
  - Platforms
  - Sidewalk and road covers
- Mounting and dismounting vehicles and equipment
- Climbing ladders
- Loose, irregular surfaces such as gravel

Causes of Slips

- Sloped, uneven or muddy terrain
- Weather hazards
- Leaves, pine needles and other plant debris (wet or dry)

Causes of Trips

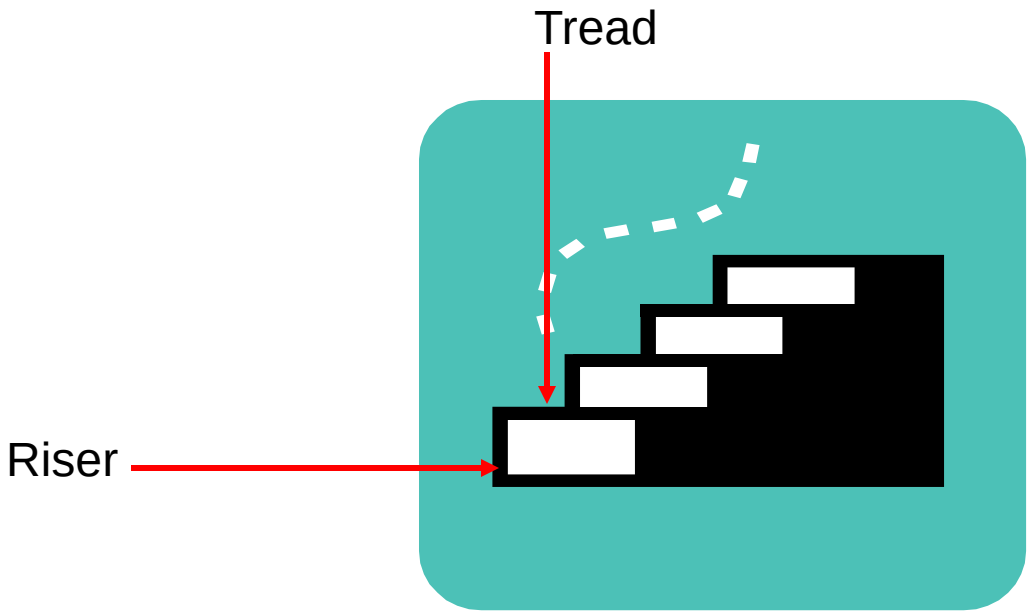
- Uncovered hoses, cables, wires or extension cords across aisles or walkways
- Clutter, obstacles in aisles, walkway and work areas
- Open cabinet, file or desk drawers and doors

Causes of Trips

- Changes in elevation or levels
  - Unmarked steps or ramps
- Rumpled or rolled-up carpets/mats or carpets with curled edges
- Irregularities in walking surfaces
  - Thresholds or gaps
- Missing or uneven floor tiles and bricks

Causes of Trips

- Damaged steps
- Non-uniform, improper or irregular steps
  - Taller of shorter
  - Shallower tread depth
  - Otherwise irregular



Environmental Conditions Increasing Risk of Trips & Slips

- Poor lighting
- Glare
- Shadows
- Bulky PPE (improper footwear)
- Excess noise or temperature
- Fog or misty conditions
- Poor housekeeping
- Improper cleaning methods and products
- Inadequate or missing signage

Human Factors
Increasing Risk of Trips & Slips - **Physical**

- Failing eyesight and/or visual perception
- Age
- Physical condition and fatigue
- Stress or illness
- Medications, alcohol and drug effects

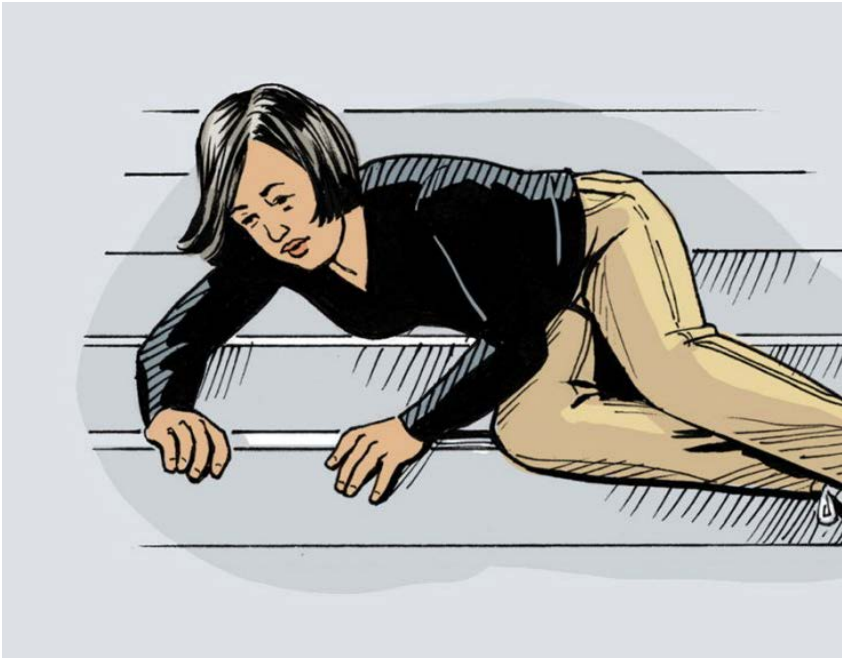
Human Factors
Increasing Risk of Trips & Slips - **Behavior**

- Carrying or moving cumbersome objects or simply too many objects at one time
- Not paying attention to surroundings or walking distracted
- Taking unapproved shortcuts
- Being in a hurry and rushing

STFs are Preventable

- Design of workplace and work processes
  - Design workplace and processes to prevent potential exposures to slip & trip hazards
- Good housekeeping
  - Maintain clear, tidy work areas free of clutter
- Safe walking practices
  - Follow safe walking practices and routes
- Wearing proper footwear
  - Wear proper footwear with good traction
- Learn to fall “properly”
  - There are techniques that can minimize fall injuries

Falls – Stay Bent



- The moment you sense you've lost your balance, get ready to fall with bent elbows and knees. When people panic, they become rigid.
- Bend your elbows and have some give in your arms to soften the impact." When you're rigid, you're more likely to suffer a set of injuries called FOOSH — doctor speak for "Fall on outstretched hand." The result is often a broken wrist or elbow.

Falls – Protect Your Head

- If you're falling forward, be sure to turn your face to the side.
- Falling backward? Tuck your chin to your chest so your head doesn't hit the ground.

Falls – Land On “The Meat”

Landing on meaty parts of your body — the muscles in your back, butt or thighs.

Not bone.

If you keep your knees and elbows bent and look to land on muscle, you'll be less likely to crack your elbows, knees, tailbone or hips.

Falls – Keep Falling

Your instinct will be to stop your body as quickly as you can. But your safest route is to keep rolling — indeed, the more you give in to the fall, the safer it will be.

Spread the impact across a larger part of your body; don't concentrate impact on one area. The more you roll with the fall, the safer you will be.

Workplace/Work Process Design

- Contain work processes to prevent discharge, splatter, or spillage of liquids, oils, particles, and dusts onto floor
  - Local exhaust ventilation
  - Extraction/collection systems
  - Enclosures
  - Work surfaces with raised or lipped edges
  - Catch/drip pans, drain-offs

Workplace/Work Process Design

- Use adequate ventilation to avoid smoke, steam and condensation of water and grease onto floor
- Provide adequate lighting to keep work areas, aisles and paths of travel well lit

Workplace/Work Process Design

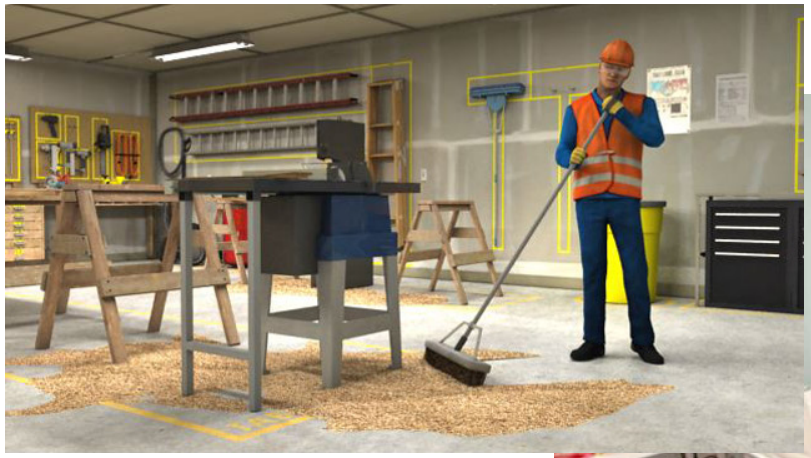
- Mark/highlight step edges and transition areas (changes in elevations)
  - Use anti-skid paint, slip-resistant coatings and strips
- Make sure stairs have sufficient lighting and handrails
- Provide effective drainage, false floors or work platforms
- Install slip-resistant floors in high-risk areas

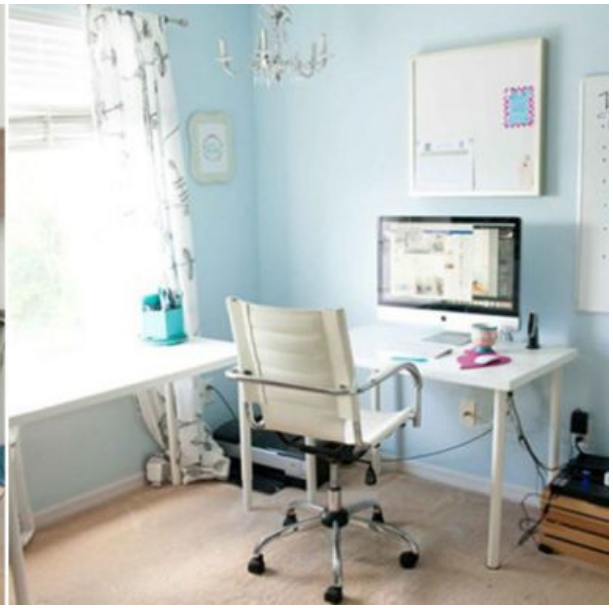
OSHA's Regulations
29 CFR 1910 Subpart D

Walking Working Surfaces

Housekeeping

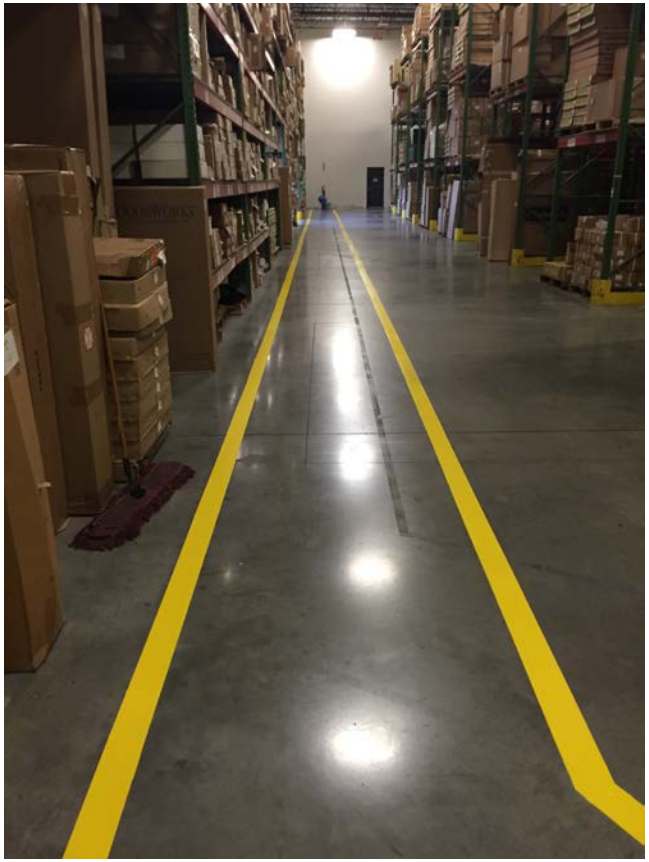
- All places of employment clean and orderly and in a sanitary condition
- Workrooms clean and dry
- Platforms, mats, or other dry standing places for wet processes





Aisles

- Sufficient safe clearance maintained where mechanical handling equipment is used
- Aisles and passageways kept clear and in good repairs
- No obstruction across or in aisles that could create a hazard
- Permanent aisles and passageways shall be appropriately marked



Floor Openings

- Every stairway floor opening guarded by a standard railing
- Railing provided on all exposed sides (except at entrance to stairway)

Floor Openings

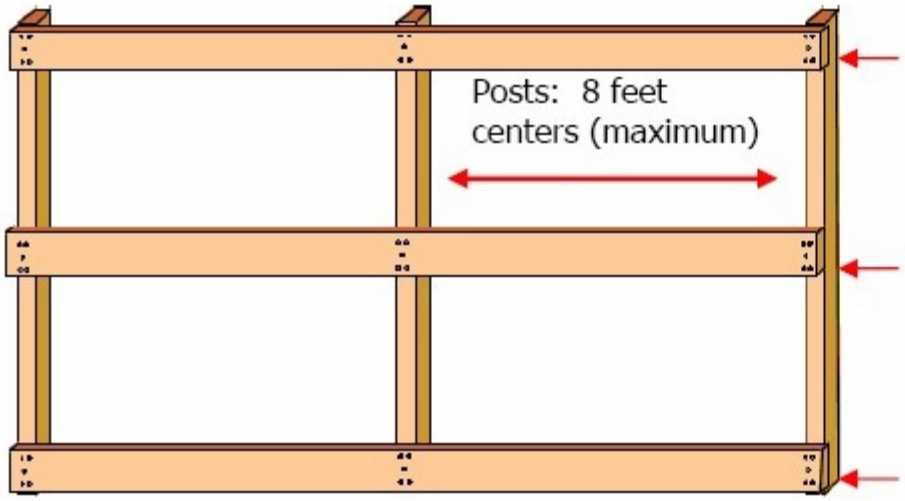
- Every ladderway floor opening or platform shall be guarded by a standard railing with standard toeboard on all exposed sides (except at entrance to opening), with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.

Floor Openings

- Where operating conditions necessitate the feeding of material into any hatchway or chute opening, protection shall be provided to prevent a person from falling through the opening.

Floor Openings

- Every temporary floor opening shall have standard railings or shall be constantly attended by someone.



Top Rail: Shall be 42 inches (plus or minus 3 inches) above walking/working level and support a 200 lb force.

Mid Rail: Shall be installed between the top rail and walking/working surface (generally, 21 inches) and support a 150 lb force.

Toe Boards: Shall be 3 ½ inches high and support a 50 lb force.

Floor Openings

- Every floor hole into which persons can accidentally walk shall be guarded by either:
  - A standard railing with standard toeboard on all exposed sides, or
  - A floor hole cover of standard strength and construction. While the cover is not in place, the floor hole shall be constantly attended by someone or shall be protected by a removable standard railing.

Wall Openings

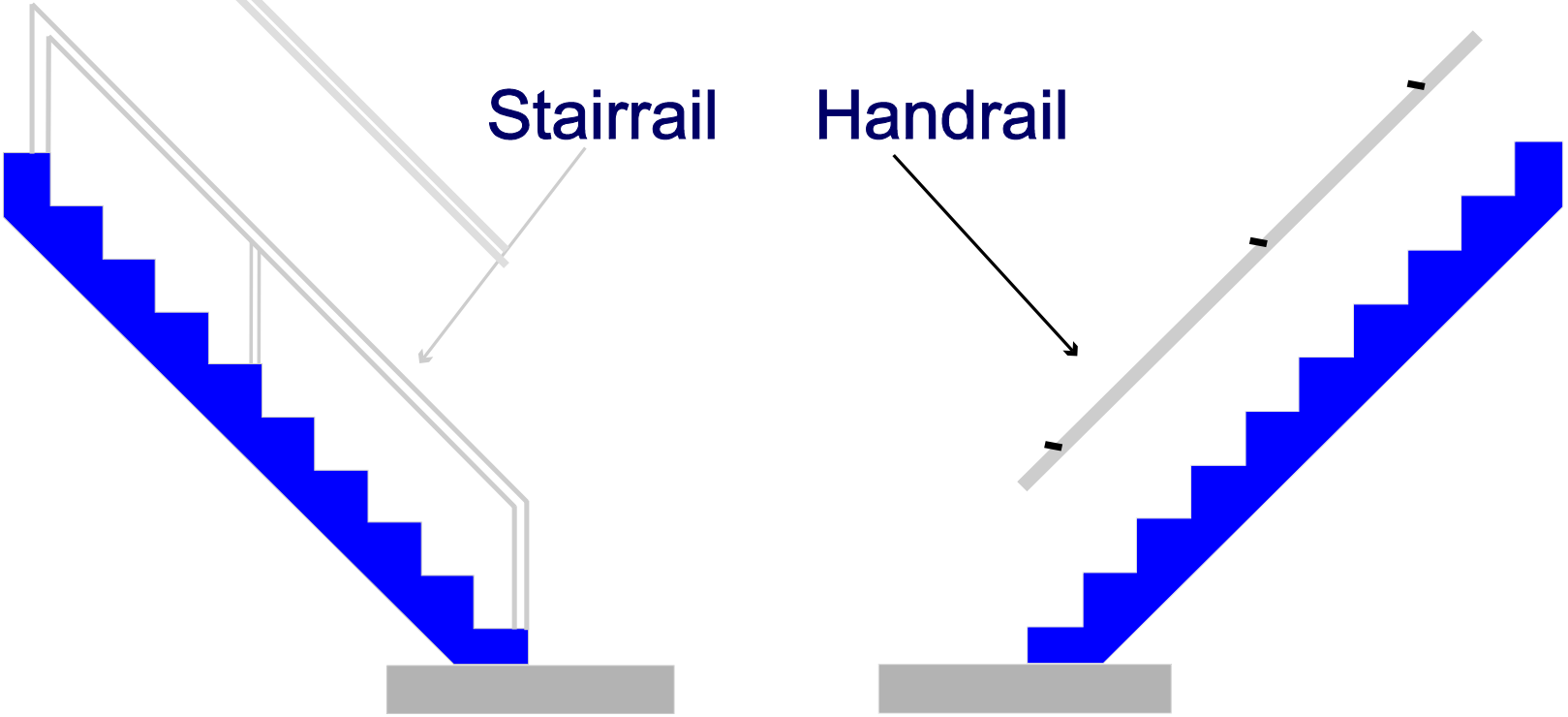
- Every wall opening from which there is a drop of more than 4 feet shall be guarded by one of the following:
  - Rail, roller, picket fence, half door, or equivalent barrier.

Stairwells

- Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails.

Railings

- A stair railing shall be not more than 34 inches nor less than 30 inches from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread



Railings

- The completed structure shall be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail.

Fixed Stairs

- Provided for regular travel between levels
- Where equipment requires attention routinely
- Fixed stairs provided where access to elevations is daily
- For work around acids, caustics, gases, or other harmful substances
- Fixed stairs minimum width of 22 inches

Fixed Stairs – Stair Treads

- All treads shall be reasonably slip-resistant and the nosing shall be of nonslip finish.
- Rise height and tread width shall be uniform throughout any flight of stairs including any foundation structure used as one or more treads of the stairs.

Fixed Stairs - Stairway Platforms

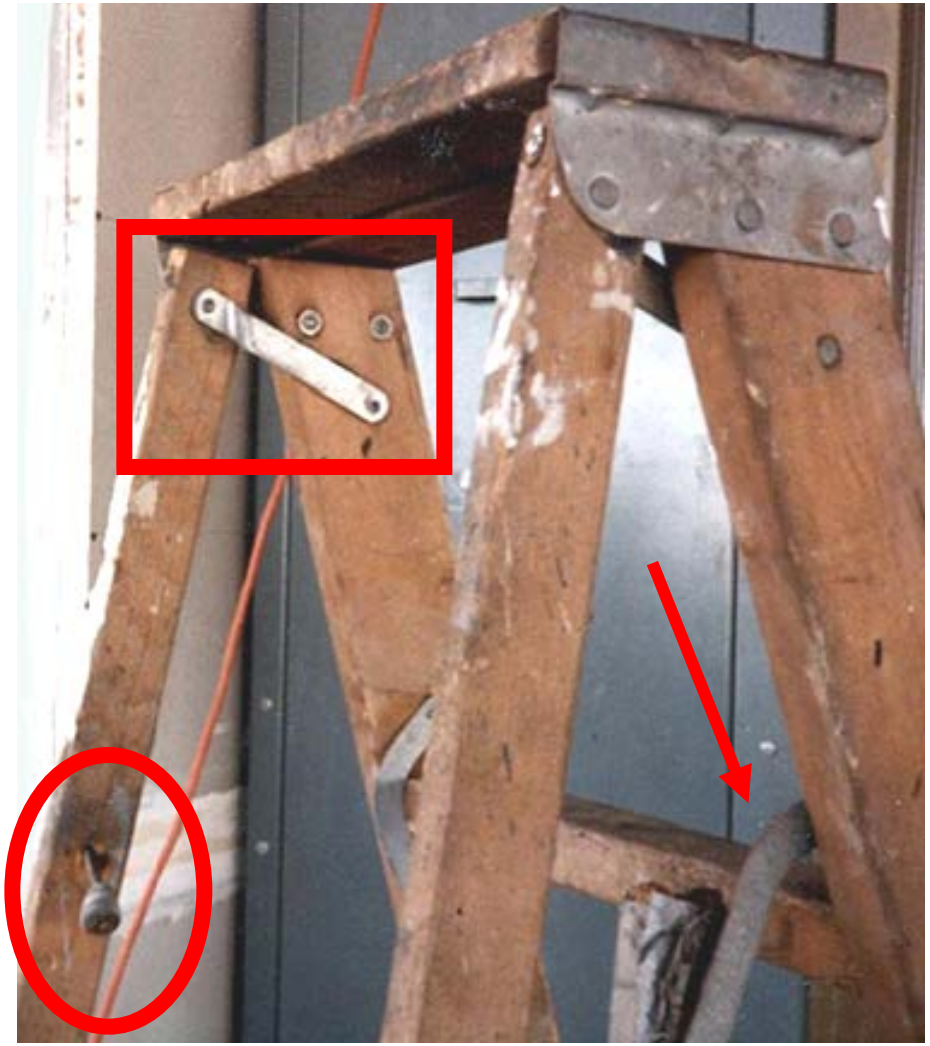
- Stairway platforms shall be no less than the width of a stairway and a minimum of 30 inches in length measured in the direction of travel.

Portable Ladders

- All parts free from sharp edges and splinters;
- Visually acceptable
- Stepladders 20' max
- Single ladders 30' max
- Maintained in good conditions at all times
- Locks, wheels, pulleys frequent lubrication
- **Safety feet and auxiliary equipment in good shape**

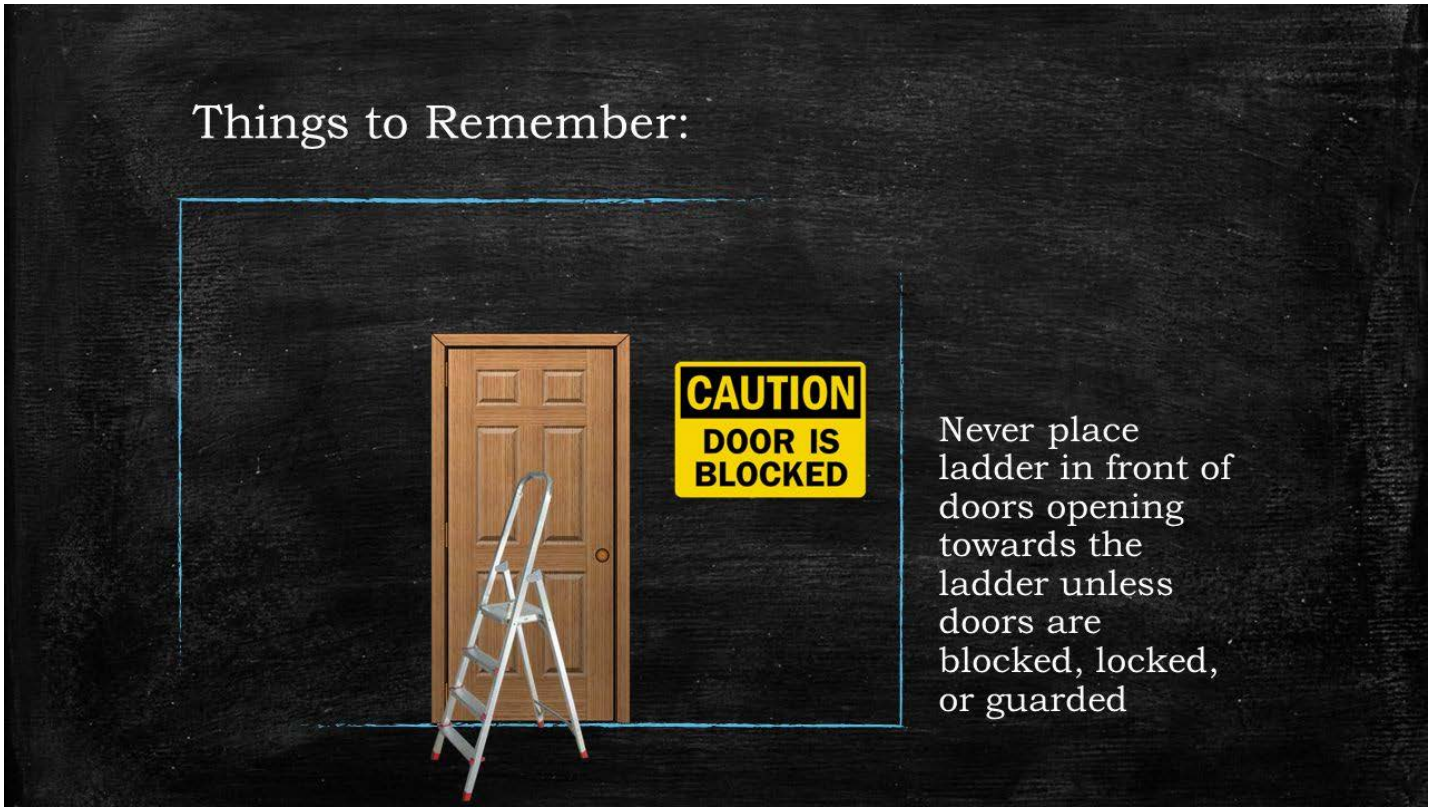
Portable Ladders - Inspection

- Ladders inspected frequently
- Those with defects withdrawn from service for repair or destruction and tagged or marked as **"Dangerous, Do Not Use."**



Portable Ladders

- Ladders not placed in front of doors opening toward the ladder unless the door is blocked upon, locked, or guarded;



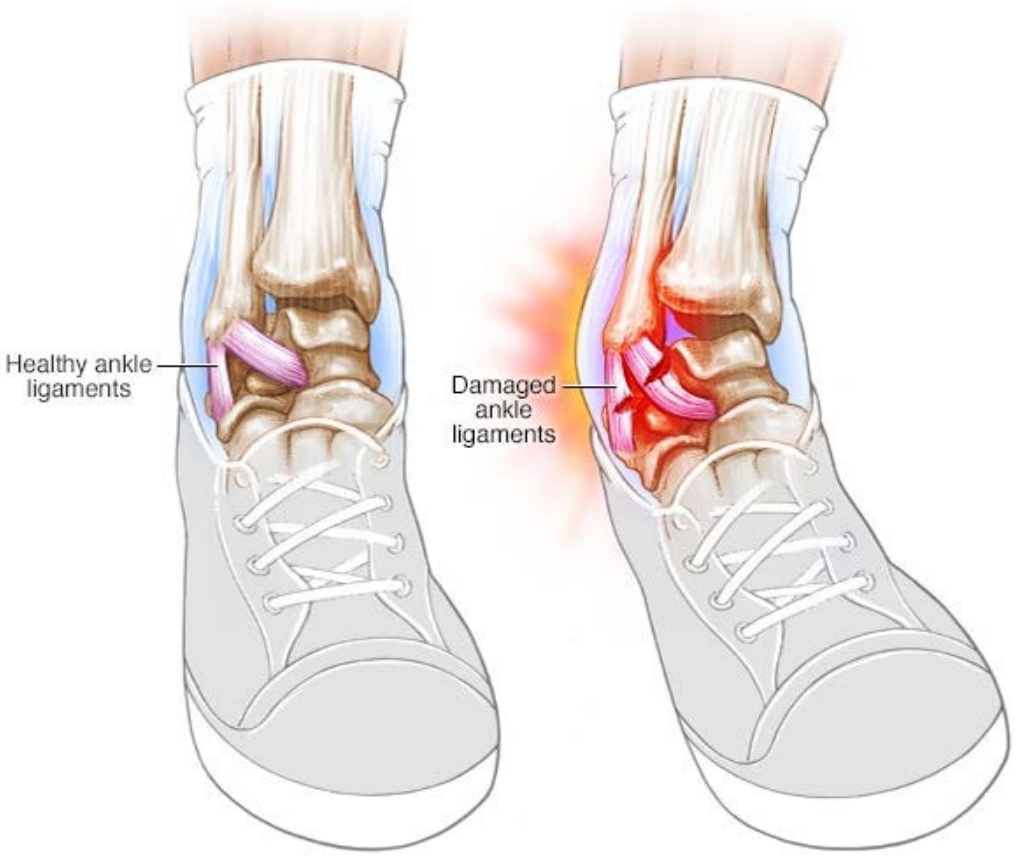
Portable Ladders

- Tops of the ordinary types of stepladders shall not be used as steps

Strains & Sprains

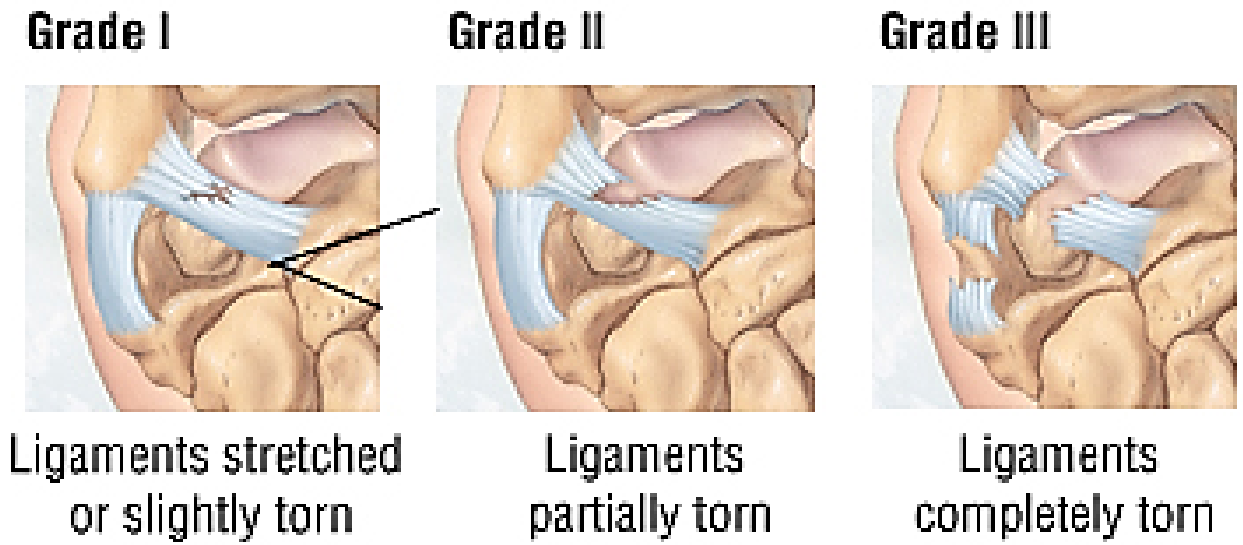
Sprains -General Knowledge

- Sprains
  - A sprain is a stretch or tear of a ligament.
  - Ligaments connects one bone to another.
  - Ligaments have poor blood supply (that's why they are white!) so healing can take 3-12 months.



Grades

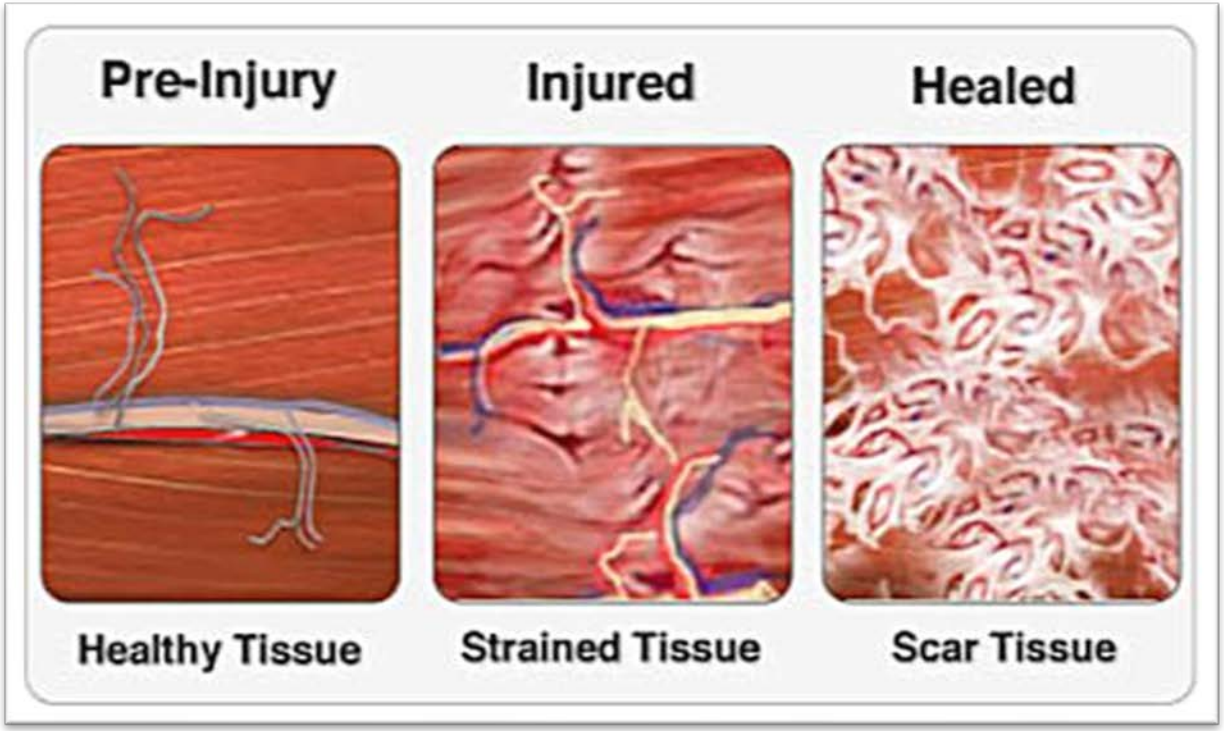
- Sprain Classification
  - Grade 1: some stretching and some damage to the fibers.
  - Grade 2: A partial tearing with some subluxation (displacement of a joint).
  - Grade 3: Complete tears and dislocations.



Strains

- A direct injury to muscles or tendons.
- Tendons connect muscles to bones.
- Like ligaments, they have poor blood supply.
- They are often under “high stress” and require modified activity or protection to heal.

Strains


Pre-Injury
Injured
Healed
Healthy Tissue
Strained Tissue
Scar Tissue

Signs & Symptoms | Treatment

Signs & Symptoms

- Pain
- Muscle spasm
- Muscle weakness
- Swelling
- Inflammation
- Cramping

Treatment

- RICE (Rest, Ice, Compression & Elevation)
- Specific exercises to regain mobility
- Surgery

The Causes of Sprains and Strains

- Sprains and strains can happen suddenly or develop over the course of days, weeks or months. When a worker is exposed to causative risk factors, they are more likely to develop a sprain or strain. There are two general categories of risk factors: workplace risk factors and individual risk factors.

Workplace Risk Factors

- **Excessive force.** Many work tasks require high force loads on the human body. Muscle effort increases in response to high force requirements, increasing associated fatigue which can lead to musculoskeletal disorders (MSDs).
- **Excessive repetition.** Many work tasks and cycles are repetitive in nature and are frequently controlled by hourly or daily production targets and work processes. High task repetition, when combined with other risk factors such as high force and/or awkward postures, can contribute to the formation of MSDs. A job is considered highly repetitive if the cycle time is 30 seconds or less.
- **Awkward posture.** Awkward postures place excessive force on joints and overload the muscles and tendons around the effected joint. Joints of the body are most efficient when they operate closest to the mid-range motion of the joint. Risk of MSDs is increased when joints are worked outside of this mid-range repetitively or for sustained periods of time without adequate recovery time.
- **Other environmental factors.** Slip, trip and fall hazards increase risk of a sudden, acute soft tissue injury.

Individual Factors

- **Poor work practices.** Workers who use poor work practices, body mechanics and lifting techniques are introducing unnecessary risk factors that can contribute to MSDs. These poor practices create unnecessary stress on their bodies that increases fatigue and decreases their body's ability to properly recover.
- **Poor overall health habits**. Workers who smoke, drink excessively, are obese, or exhibit numerous other poor health habits are putting themselves at risk for not only musculoskeletal disorders, but also for other chronic diseases that will shorten their life and health span.
- **Poor rest and recovery**. MSDs develop when fatigue overcomes the worker's recovery system, causing a musculoskeletal imbalance. Workers who do not get adequate rest and recovery put themselves at higher risk.

Individual Factors

- **Poor nutrition, fitness and hydration.** For a country as developed as the United States, an alarming number of people are malnourished, dehydrated and at such a poor level of physical fitness that climbing one flight of stairs puts many people out of breath. Workers who do not take care of their bodies are putting themselves at a higher risk of developing musculoskeletal and chronic health problems.
- **No recognition of early signs and symptoms.** Many MSDs develop over the course of time. At the first signs of excessive fatigue or discomfort, the worker has an opportunity to recognize the early signs and symptoms and proactively use recommended injury prevention tools and principles. Not recognizing early warning signs lends to a reactive approach and it's only a matter of time until these signs and symptoms develop into a musculoskeletal injury.

OSHA Proactive Approach to Sprains and Strains in the Workplace

- Prevention is, of course, better than treatment. Sprains and strains are a painful and unnecessary experience that we want to prevent from happening. To do that, you need a comprehensive prevention process to systematically identify and remove the risk factors present in your workplace and workforce through the use of controls.
- There are two primary types of controls: workplace controls to reduce or remove ergonomic risk factors and individual controls to reduce or remove individual risk factors.

Workplace Controls

- **Engineering controls** that eliminate or reduce awkward postures with ergonomic modifications that seek to maintain joint range of motion to accomplish work tasks within the mid-range of motion positions for vulnerable joints. Proper ergonomic tools should be utilized that allow workers to maintain optimal joint positions.
- **Administrative controls** include work practice controls, job rotation and counteractive stretch breaks.

Individual Controls

- **Education and training.** Employees should be trained on all aspects of human performance, including ergonomics, MSD prevention principles and individual health and wellness. Formal classroom training and one-on-one follow up ensures the message is getting through.
- **Early intervention.** The early warning signs of future injuries are present in your workforce today. Early intervention is a proactive strategy designed to discover early warning signs of MSDs and prevent the early warning signs from developing into an injury. These one-on-one consultations with individual workers are often the last line of defense between risk factors present and an injury.

What is Body Mechanics?

- A term used to describe the ways we move as we go about our daily lives.
- It includes how we hold our bodies when we sit, stand, lift, carry, bend, and sleep.
- Poor body mechanics are often the cause of back and other body problems.

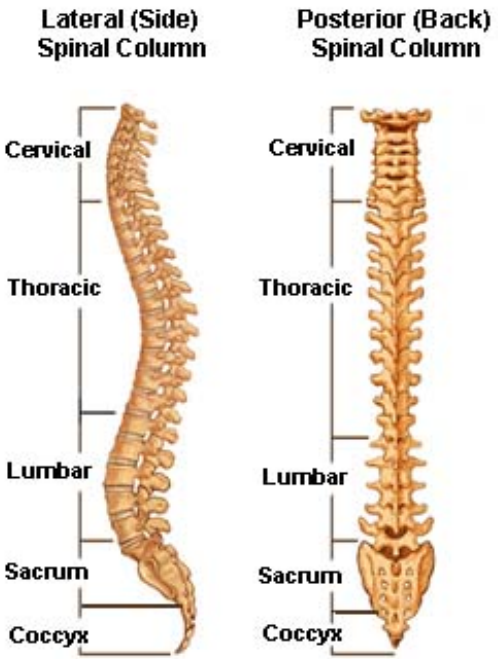
Body Mechanics

- When we don't move correctly and safely, the spine is subjected to abnormal stresses which over time can lead to degeneration of spinal structures like discs and joints, injury, and unnecessary wear and tear.
- Which is why it is so important to learn the principals of proper body mechanics.
- They are not complicated. Once you get used to them, they can easily be incorporated into your daily life. You will be glad you learned them as they can save you from back pain and discomfort.

The Spine

What we think

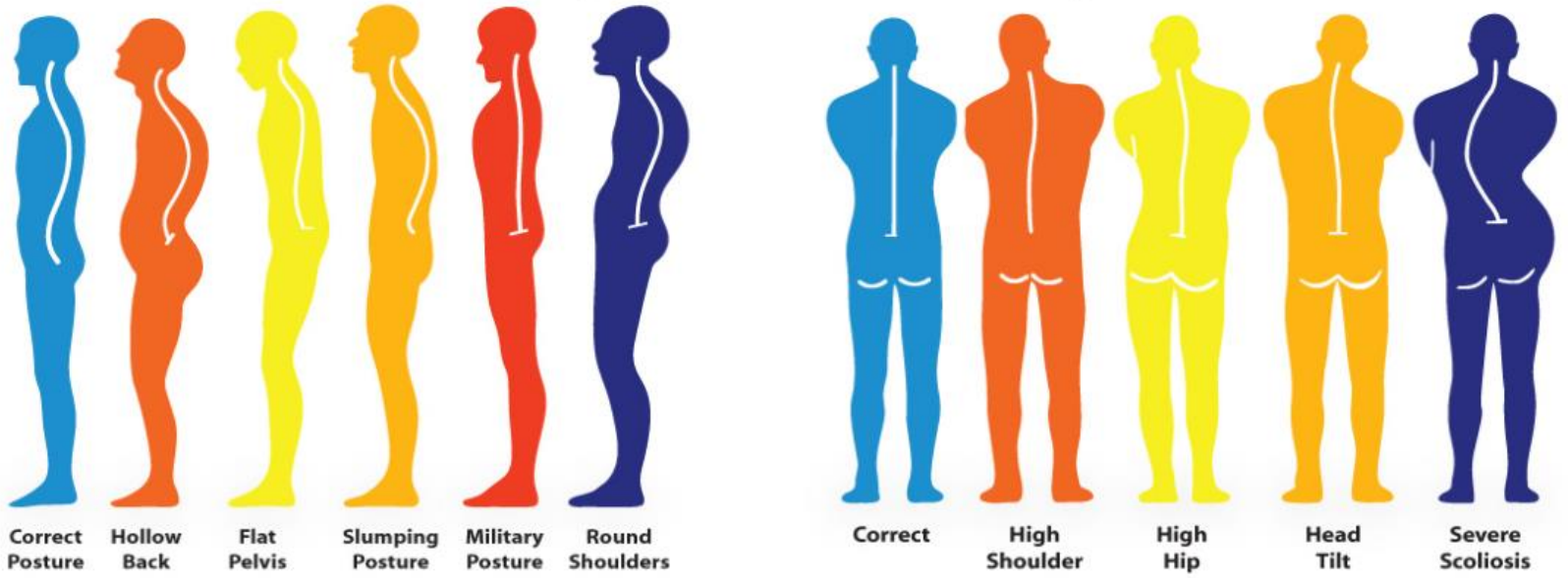
Reality



Posture

- We have all been told since childhood to "stand up straight". But it's easy to get into bad habits.
- Good body mechanics are based on good posture.
- Good posture means the spine is in a "neutral" position - not too rounded forward and not arched back too far.

Which posture are you?



Powerful Posture creates Peak Performance

Standing Guidelines

- Avoid standing in one position for prolonged periods of time. Change your position as often as you can. This will not only help relieve stress on your spine, it also helps increase circulation and decrease muscle fatigue. When you can, stretch. Gentle stretching exercises during a break can help ease muscle tightness.
- Be aware of your posture. Are you standing correctly? Check and double check throughout your day.
- Make sure the surface you are standing on is firm and level.
- If possible, lean on a solid support. This can help reduce fatigue during long periods of standing.

Sitting

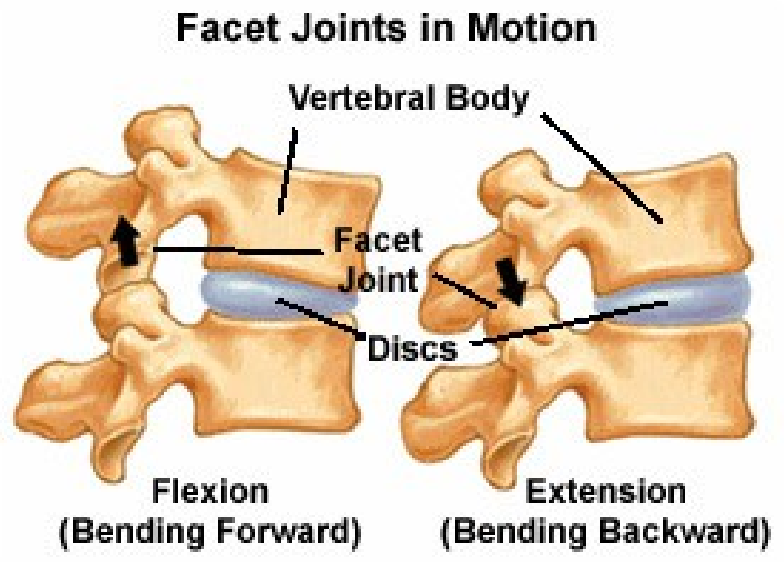
- Whether sitting at a desk or at home watching television, good body mechanics are still important to keep in mind.
- What does proper sitting look like?

What Does Proper Sitting Look Like?

- Place your buttocks at the back of the seat while maintaining a small space between the back of your knees and the seat of the chair.
- Place your feet flat on the floor with your knees bent at a 90° angle.
- Pull your shoulders back and lift your chest.
- Lift your chin until it is level and relax your jaw and mouth.

Mechanics: Poor Posture

- One of the main reason's injuries occur.
- The spine’s normal curves are exaggerated or decreased creating stresses and strains in the tissues.
- The result is pain and dysfunction and can lead to serious injury.



Lifting

- The process of lifting places perhaps the greatest loads on the lower back and therefore, has the highest risk of injury.
- Use of proper lifting mechanics and posture is critical to prevent injury.
- In the end, it is more important how you lift than how heavy a weight you lift.

Lifting

- Place the load immediately in front of you.
- Bend the knees to a full squat or lunge position.
- Bring the load towards your chest.
- Assume a neutral position with your back.
- Tighten the lumbar and buttocks muscles to "lock" the back.
- Lift now from the legs to the standing position.

- DO NOT:
  - Lift from a twisted/sideways position.
- DO NOT:
  - Lift from a forward stooped/imbalanced position.

Lifting Do's and Don'ts

Working from Home Safety

Safety First in the Home Office

There are more safety hazards in local homes than you might think. Beyond tripping over a pile of slippers at your front door, other hidden safety hazards exist in your home that should be addressed before you get to work. Start by conducting a safety assessment to identify the risks that may be present in your home. Risks may include ergonomic, physical, chemical, biological, environmental, and electrical hazards.

For Owners/Supervisors:
4 Steps to a Healthy Home Office

1 – **Plan**

- Create a work from home safety plan for your organization by first reviewing your OSHA 300 logs to find out the most frequent and common injuries in your business and if they can also occur at home.
- Look at the job titles of employees who are injured most frequently and ask yourself:
  - Which employees are seeing the most strain?
  - What motions or movements are they required to do?
  - What type of injuries do they have?

For Owners/Supervisors:
4 Steps to a Healthy Home Office

2 – Do

- Once you identify where improvements can be made, choose solutions that every employee can participate in:
  - Provide an employee checklist of things to prepare for their home offices
  - Provide a list of recommended daily exercises or stretches at home
  - Encourage employees to stay hydrated throughout the day

3 – Check

- After employees implement changes to their home workspaces, check in often to measure their success.

For Owners/Supervisors:
4 Steps to a Healthy Home Office

4 – **Adjust**

- Are employee injuries happening less frequently? If not, you may want to reassess, adjust, and implement new solutions. Repeating this cycle is a great way to decrease ergonomic injuries in both the workplace and at home over time.

Risk Assessment Checklist

- Workstation and Area
- Lighting
- Flooring
- Ventilation
- Computers, laptops and tablets
- Security of data
- Insurance, if applicable
- Electrical installations

3 Essential Parts of an Ergonomic Workstation

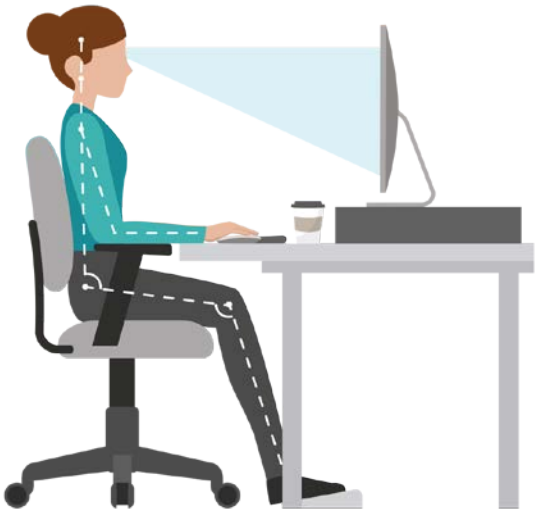
1 – Chair

- A rolling chair with back support and padding is a good option.
- Adjust your chair so that your knees and elbows maintain a 90-degree right angle.
- Do not cross your legs. The back of your knees should be a few inches away from the edge of the chair.
- If you aren't able to place your feet flat and firmly on the ground, use a footstool or mat to protect your back.
- Keep your back, shoulders, and neck straight and centered towards the monitor.

3 Essential Parts of an Ergonomic Workstation

2 – Monitor

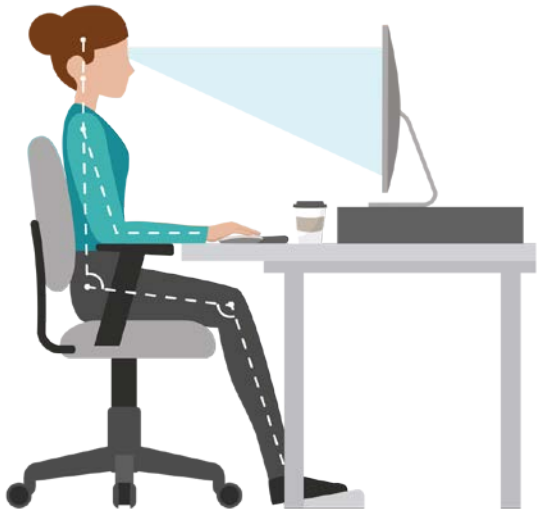
- Position your monitor at least 20 inches away from your face (about an arm's length away). A larger screen may require more viewing distance. Your eye level should sit at the top third of the screen.
- For every 20 minutes of screen time, look at an object at least 20 feet away for at least 20 seconds.



3 Essential Parts of an Ergonomic Workstation

3 – Desk

- Your desk should be about 26 to 30 inches above ground level, depending on your height, and your elbows should be at a 90-degree right angle.
- The keyboard and mouse should be in line with your elbows.
- A hand rest can be used to prevent your hands from bending awkwardly.



Work From Home: Slips, Trips, & Falls

Slips, trips, & falls are some of the most common types of workplace injuries. For those working at home with children, your floors can sometimes be a minefield of Lego pieces, safety scissors, and other obstacles. Familiarize yourself with common tripping hazards and what you can do to prevent them:

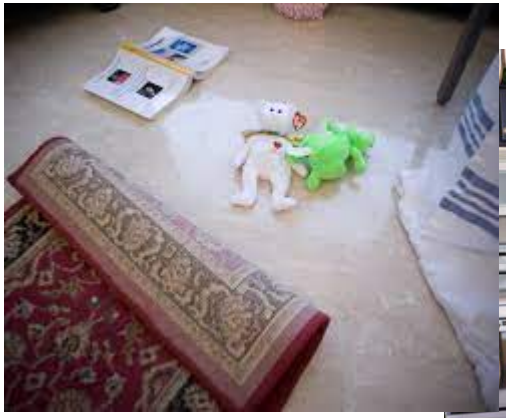
Slips

- Improper footwear (going barefoot outside, wearing socks on slippery floors)
- Slick floors (spilled drinks, grease, cleaning products, hard to spot spills, rain)
- Debris (unraked leaves and foliage, fallen mangoes or fruit)

Work From Home: Slips, Trips, & Falls

Trips

- Clutter (toys, open drawers, electronic power cords, slippers in front of doorways)
- Flooring (uneven floormats, curled carpeting, uneven flooring)



Work From Home: Slips, Trips, & Falls

Falls (from elevation)

- Stairs
- Ladders
- Using improper stools and ladders without support

The End

Questions