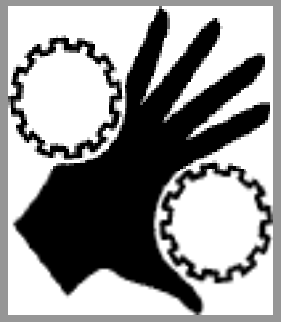
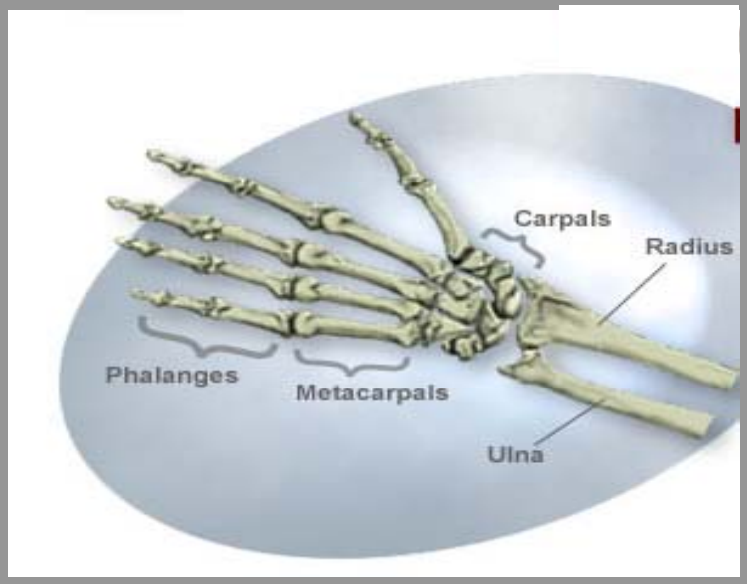
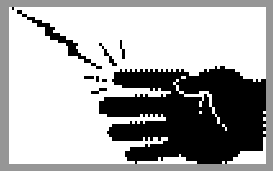
HAND SAFETY in the WORKPLACE







Safety and Health Council of North Carolina

Presented By: Safety and Health Council of NC
2709 Water Ridge Parkway Suite 120
Charlotte, NC 28217
(704) 644-4220
www.safetync.org

Hand Protection
The following topics will be covered:

- Hand Hazards
- Types of Protection
- Limitations
- Gloves

What is the law ???

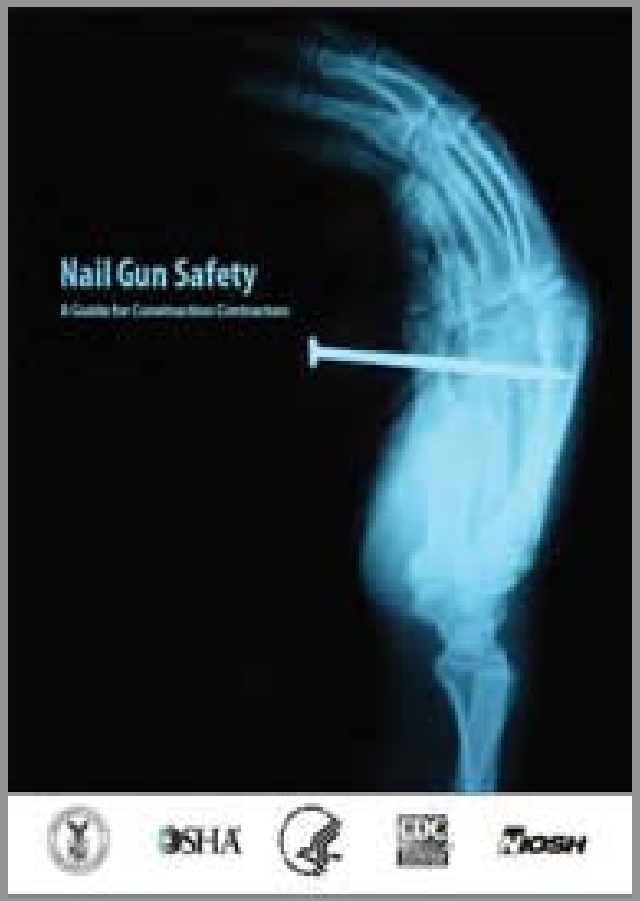
- 1910.138(a)

  General requirements. Employers shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

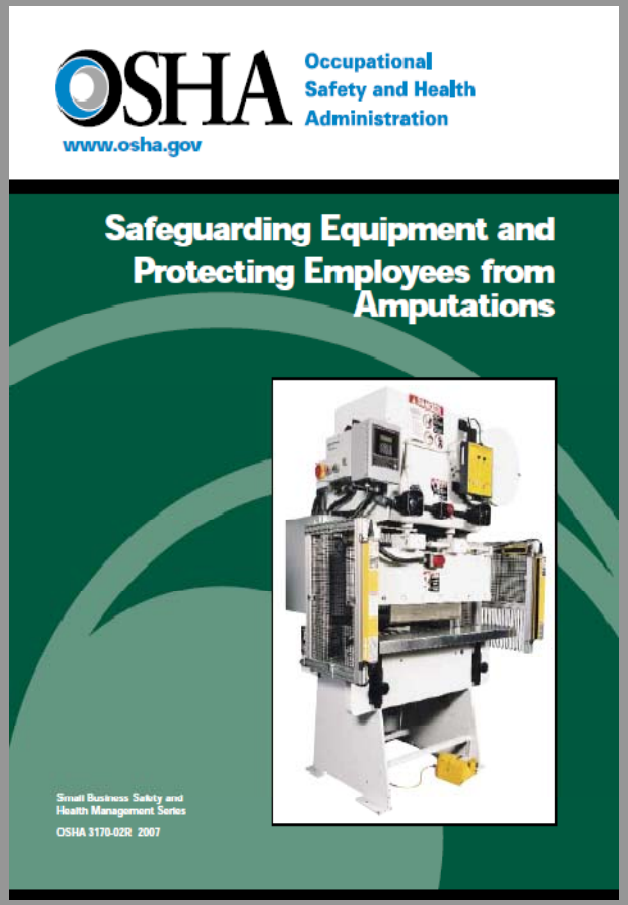
5(a)(1) General Duty Clause; Safe and healthful workplace

Several other standards address hand safety as well…

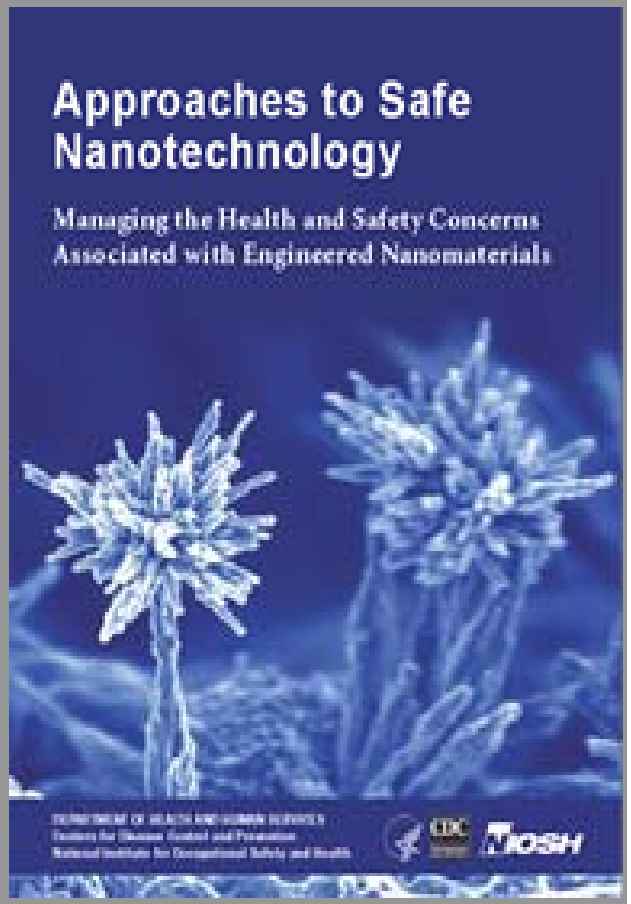
Publications addressing major hazards associated with Hand Safety



OSHA/ NIOSH 2011



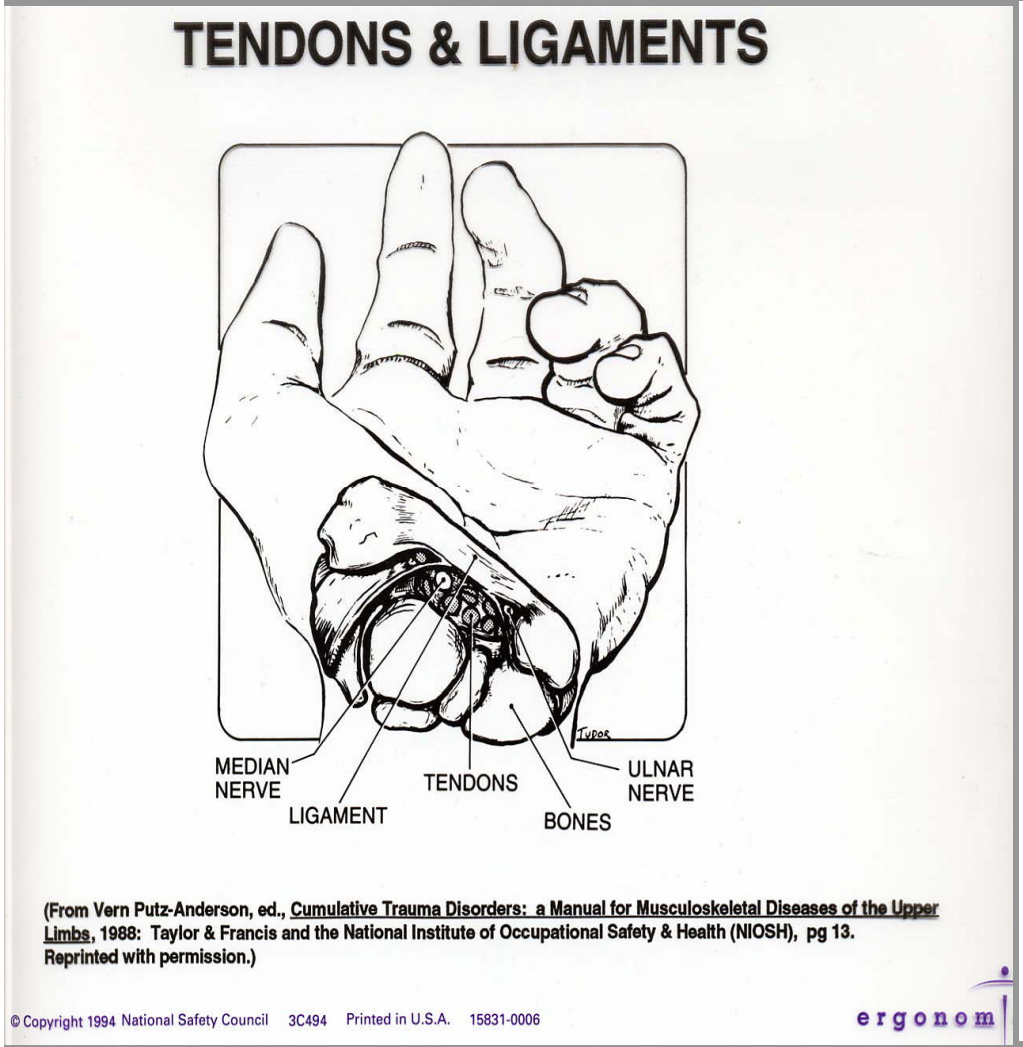
OSHA 2007

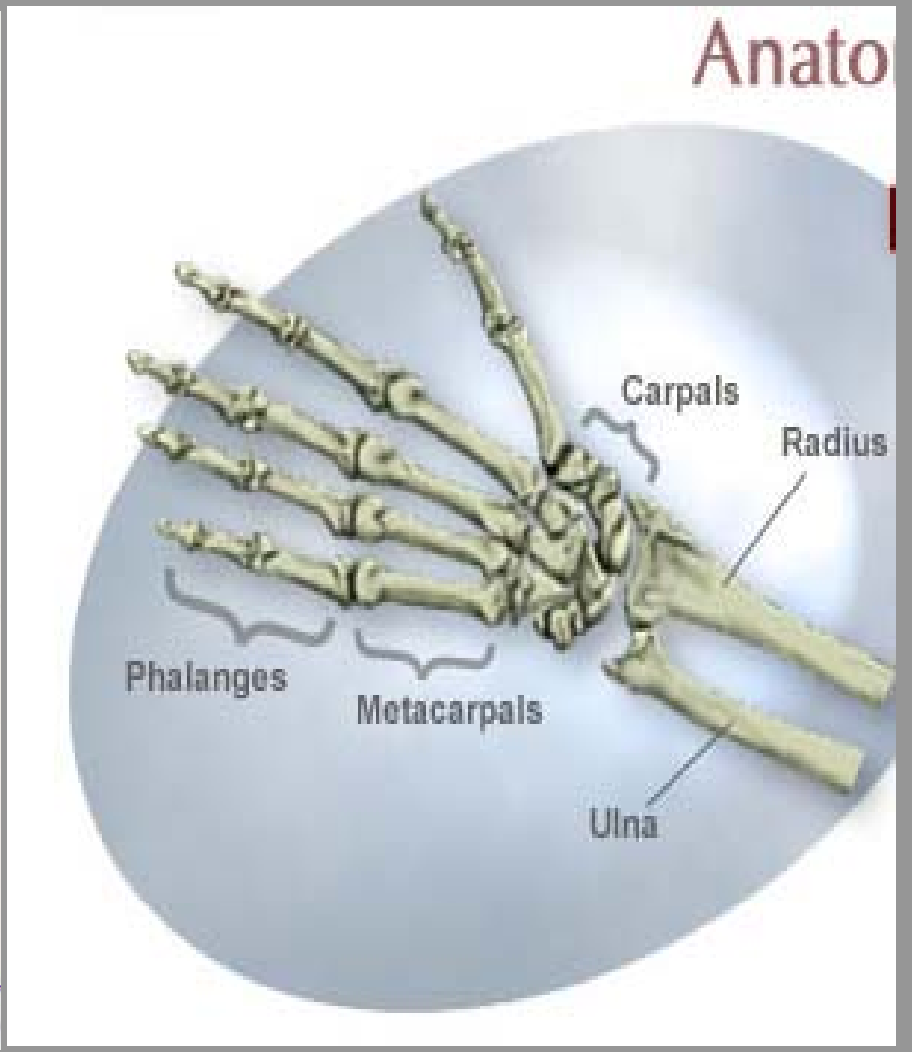


NOSH 2009

If you lose the use of your hand or fingers What do you really lose?

What's in a hand ??





Your Hands

Your hands – don't take them for granted

Human hands are unique and one of our greatest assets.

Can you imagine not being able to work with your hands?

Hand injuries can vary from minor cuts or irritation to amputations.

Hand Injuries

Well Over 1,000,000 Hand Injuries A Year

20% of disabling workplace injuries involve the hands.

Injury Types

Lacerations	63%
Crush	13%
Avulsion	8%
Puncture	6%
Fracture	5%

Primary cause of hand injuries is equipment not performing as expected.

HAZARD ANALYSIS FOR HAND SAFETY

- Conduct a review of injuries/ incidents reported
- Conduct analysis of hazardous chemicals and PPE assigned in the workplace
- Complete a Physical Hazard Assessment of entire work operation (Electric, Crush, Amputation, Caught In, Struck By, Hot/ Cold Surfaces, Laceration, Chemical Exposure)
- Review PPE/ Tools assigned to each risk type
- Review work practices for the hazards, intended to prevent hand injuries
- Conduct a Machine Guard program review and inspection

Potential Hand Hazards

Bites

Crushing

Contusions

Lacerations

Burns

Amputation

Vibration

Sprains and Strains

Punctures

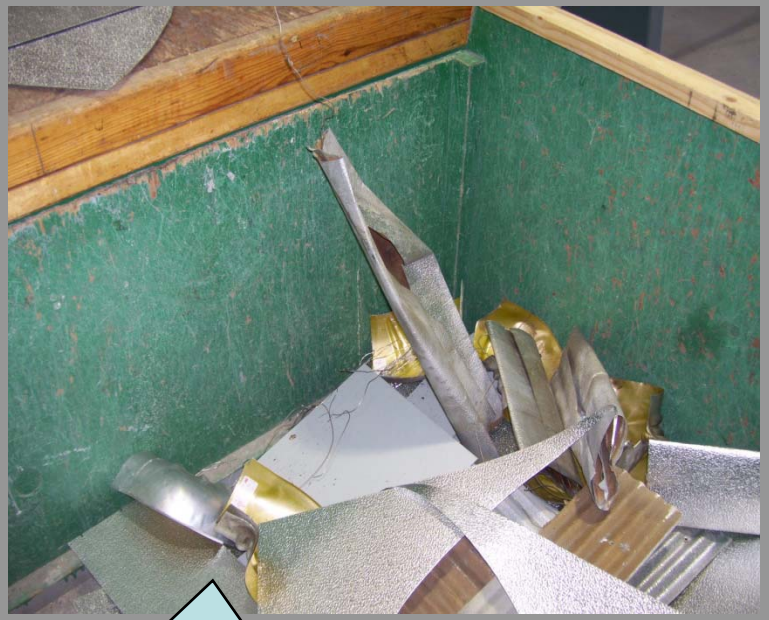
Chemicals

Frostbite

Abrasion

Penetration

Fracture



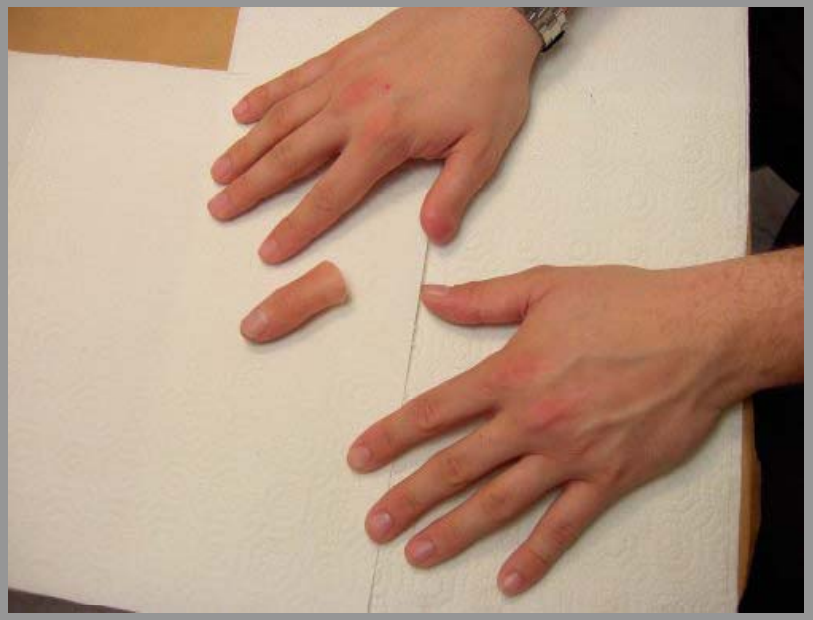
Elec Burn

Lacerations

Bites

Dermatitis

The Possible Results



SO ITS NO BIG DEAL HUH…

LETS TRY A COUPLE OF DRILLS…

Buttoning your shirt ?

Signing your check

Eating Dinner

Changing a fishing lure (How about tying your shoe?)

We've conducted training, done a PPE assessment, given our employees the best of gloves and tools and we are still experiencing injuries.

What else can we do??

WHOSE HANDS ARE THEY ANYWAY??

Responsibility: We all have the responsibility to not engage in risky behavior at work… and to report any uncontrolled or unaddressed hazards.

Accountability: Machines, energy and chemicals ***WILL*** hold us absolutely accountable for our actions whether we like it or not.

Authority: Your company has given you authority to enforce safe work practices, report and have the company address concerns regarding hand safety,

START A WAVE

PROMOTE HAND SAFETY…

What can we do about the dangers

PPE

Procedures

Tools

Guards

Procedures, Guards and Tools

PROCEDURES: need to be developed that limit exposure to the hazards and employees must be informed and trained to comply.

Examples of Procedures include: glove selection policies, PPE/ tool use rules, servicing/ handling procedures, chemical dispensing policies.

Equipment/ Tool problem reporting needs to be stressed.

IS THE PROCEDURE SAFE ???

SITUATIONS TO BE AVOIDED

PUTTING YOUR HANDS IN PLACES YOU CANNOT SEE

DOING IT FAST RATHER THAN SMART

ONLY DOING IT THIS ONE TIME

BETTING YOUR HANDS/ FINGERS ON YOUR REFLEXES

Housekeeping

Work station housekeeping is a critical factor in hand safety. Sharp shavings, parts and tools laying about give us nasty surprises. Chemical spills need immediate and thorough neutralizing and cleanup.

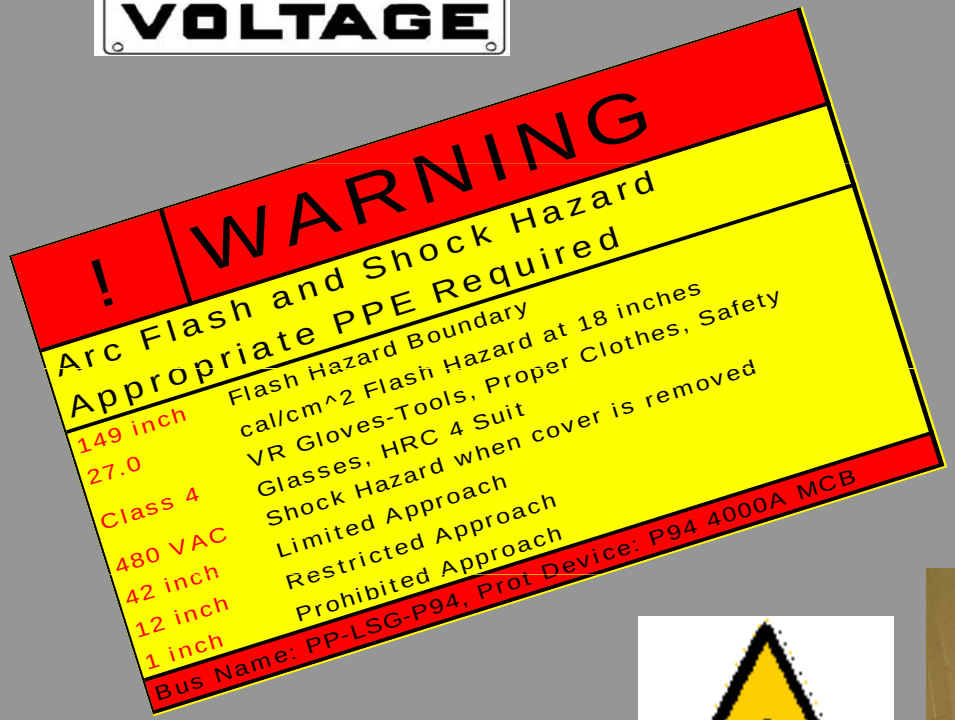
Protecting Hands with Guards and Tools…

Where possible, machine, energy and chemical guards should be used to limit any potential for exposure.

It is essential that employees not expose themselves or others to hazards by removing or avoiding guards.

Report all problems with guards to your supervisor.

Machine Guards must be in Place and secure



Warning Signs must be in place and legible

TOOLS

Tools are a great alternative to allowing our hands to be sliced, diced or burned. A tool has no feeling and can always be replaced.

Tools used in the workplace must be substantial and functional (do what we want). It is extremely important to match tools to both the task and the worker.

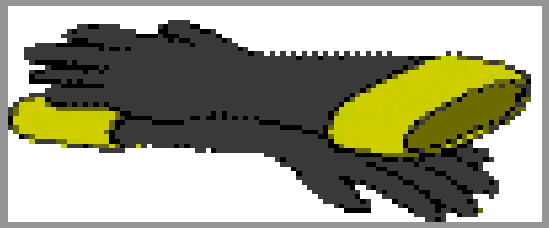
SAW PUSH STICKS

WRENCH EXTENSIONS

Meat Plunger

Controls for Hand and Arm Hazards

Proper Gloves for anticipated hazards



Watch where you put your hands or where you reach

Never blind reach

Not all gloves are created equal…. Ensure the glove you use will protect your hands from the specific hazards of the job.

Chemical gloves do not last forever… understand the chemical and "break-through" characteristics of your specific glove

Wear your protective clothing

- Electrical Protective gloves, inspect per the NEC and MFG instructions.

Before you use…

STUDIES SHOW THAT AS MANY AS 60% OF INJURIES COULD BE ELIMINATED THROUGH USE OF APPROPRIATE HAND PROTECTION

- Use the proper glove for the task
- Remove rings & bracelets
- Do not wear gloves if they can be caught in machinery
- Check gloves for wear and damage

Types of Gloves

There are many types of protective gloves

Leather gloves protect your hands from rough surfaces.

Special insulated gloves can provide protection from hot objects.

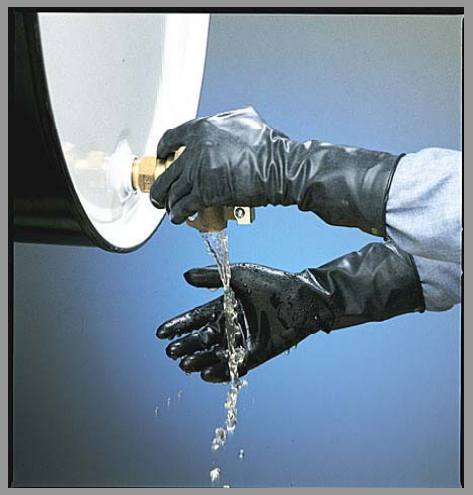
Cut-resistant gloves prevent or reduce cuts from knives or sharp edges.

Types of Gloves

Anti-vibration gloves reduce the effects of excessive vibration from hand-tools and machinery.

Disposable gloves protect against blood and germs in healthcare.

Various kinds of chemical resistant gloves prevent contact with chemicals.



Types of Gloves (cont'd)

Kevlar protects against cuts, slashes, and abrasion.

Stainless steel mesh protects against cuts and lacerations.

Electrically Insulated Gloves

Certified Linesman's Gloves

These specialty gloves are used to handle live wires or energized electrical equipment.

They must be electrically tested every 6 months.

They can't be used if not tested within past 12 months.

Check for obvious signs of wear or holes before using.

WITH THESE GLOVES A PINHOLE LEAK CAN MEAN A QUICK DEATH

Chemical Resistant Gloves

The following slides cover chemical-resistant gloves for employees who use them.

Chemical Hazards

The kind of chemical determines the hazard

Corrosives – will burn or irritate the skin

Solvents – will dry the skin out, may irritate, burn or blister, some are absorbed into the body

Pesticides – absorbed into the body

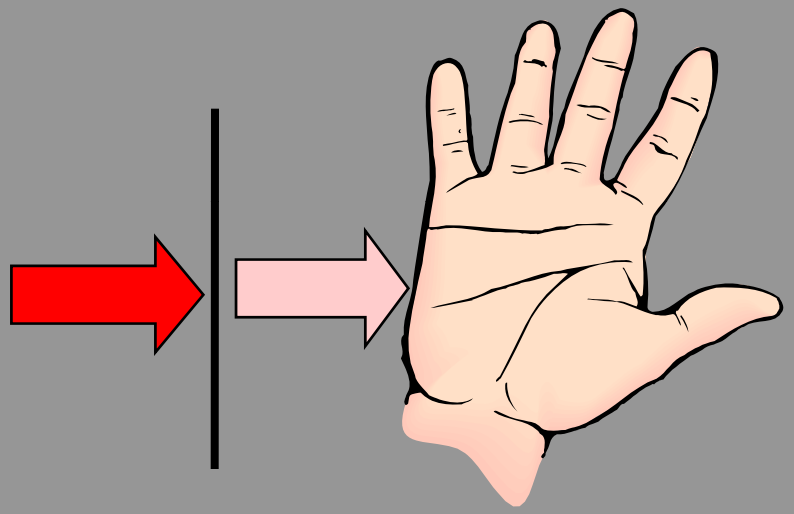
Other chemicals – a variety of effects

Chemical-Resistant Gloves

Chemical-resistant gloves facts

Chemical-resistant gloves are not totally “chemical-proof”

Chemicals will eventually penetrate the gloves over time.



Chemicals will also break down (swell, crack or weaken) the glove material over time.

The thicker the glove, the more resistant it is to chemicals.

Chemical-Resistant Gloves

Chemical glove selection

No single glove material will protect against all chemicals.

Gloves are selected according to the type of chemical.

Good chemical gloves are made of Viton®, butyl, nitrile, neoprene, or PVC or combinations of these.

Chemical-resistant Gloves

Using chemical-resistant gloves

1 Hr? 8 hrs?

You should know what chemical you are handling and how long the gloves will keep the chemical out.

Throw away gloves whenever degradation is visible or you know chemicals have leaked inside.

When handling highly toxic chemicals, two layers of chemical-resistant gloves can provide additional protection.

Glove Limitations

- ✓ Gloves can get caught in rotating machinery.
- ✓ Some people are allergic to latex gloves.
- ✓ Gloves can actually cause more problems if chemicals soak through or get inside glove.
- ✓ Gloves can fail in conditions of extreme temperatures, high mechanical force, high vibration or handling extremely harsh chemicals.

Glove Use and Care

Glove Size & Fit

Gloves come in many sizes.

Use properly fitting gloves that give you the needed dexterity.

Too big

A better fit

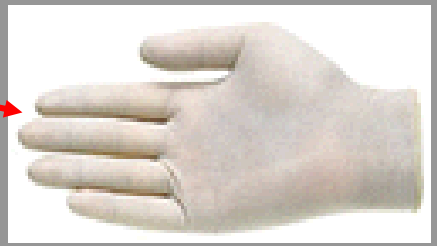
Glove Use & Care

Your hands should be clean before using gloves.

Fabric and leather gloves should be cleaned regularly or discarded.

Latex gloves should not be used by latex-sensitive people

Nitrile is recommended.



Glove Use & Care

Some common-sense rules about gloves

Replace gloves if they have cuts, tears, holes or defects.

Make sure gloves are the right length for the job.

Glove Use and Care

Use the right glove for the job

Don’t use fabric or leather gloves to handle liquid chemicals.

No!

Yes!

Removing Contaminated Gloves

Remove contaminated gloves safely and properly

Badly contaminated gloves are impossible to clean.

Removal should be done in a way so that the bare hands do not touch the outside of the gloves.

[Describe method used at your workplace here, if applicable]

Hand Ergonomics

All muscles need to be regularly exercised and cared for if we want them to work when we need them.

The following pages show different exercises used for different muscle groups.

Tendon Stretches

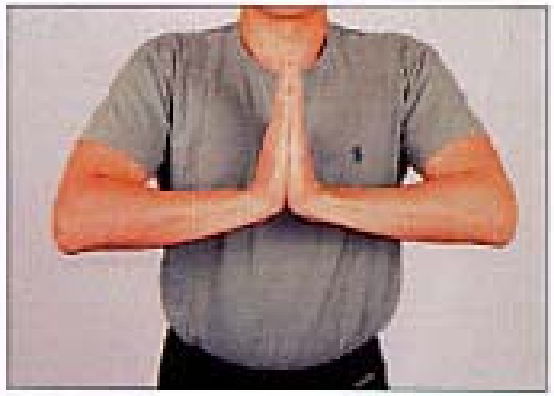


Figure 9.

Figure 10.

Figure 11.

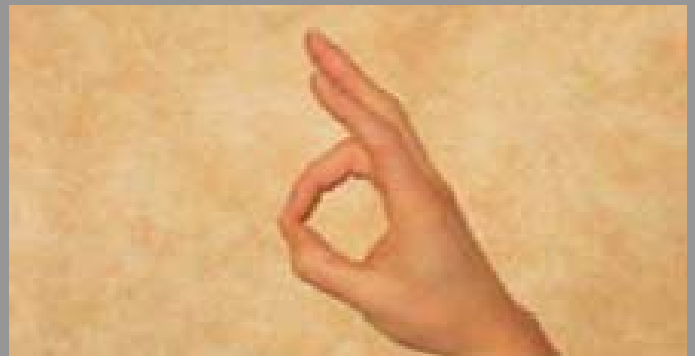
Figure 12.

Tendon Gliding; Oppose hold

5 Sec each position

Thumb Opposition; Thumb to fingertip

10 times each finger



Strengthening Grip
(Finger Flexion Grippers
or Clay 10 Reps)

Tip Pinch

Lateral Pinch

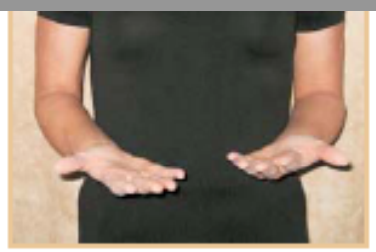
Palmar Pinch

4. **Radial/ulnar deviation**. Sit down and place arms and hands flat on surface, with palms down. Holding right forearm with left hand, turn right wrist slowly to the left and right as far as possible, as though waving. Do this exercise progression 10 times. Return to starting position, then repeat 10 times on the other hand.

a. Radial deviation

b. Ulnar deviation

5. **Supination/pronation**. Sit down with forearms and elbows rested on a table. Keep elbows against the waist. Put hands on the surface, palms down, then slowly turn hands over as far as possible, so the palms face up. Then turn hands until palms return to position against the table. Avoid moving the shoulder. Do this exercise progression 10 times.



a. Supination

b. Pronation

Strengthening exercises

As with any strengthening program, clients should start slowly and gradually increase number of sets and resistances. Include rest periods between each set.

1. **Strengthening grip**:

a. **Finger flexion**. Place putty in palm of hand and dig fingers into putty until they press through to palm. Then turn putty with thumb. Alternatively, use grippers for this exercise. Work up to three sets of 10 repetitions on each hand, with breaks in between each set.