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CONSULTATION & TRAINING BRANCH

It provides free on-site consultations for employers that identify workplace hazards, suggests corrective actions and evaluates and makes recommendations to improve an employer's safety and health management system to prevent future hazards. The public can call the Branch to inquire about safety and health standards and other related topics.

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ERGONOMIC SURVIVAL GUIDE FOR

ELECTRICIANS



What will happen to your family and your lifestyle if you get injured and can't work? What will you lose if you get injured?

- Your salary
- Your quality of life
- Your job advancement
- Future job opportunities

**AVOID THE PAIN & COST OF AN INJURY**

This SURVIVAL GUIDE is designed to promote awareness of safe work practices for ELECTRICIANS. It was made available by Cal/OSHA, California Dept. of Industrial Relations & modified by HIOSH, Hawaii Dept. of Labor & Industrial Relations, Phone: 808-586-9100.



# What Can Make You Hurt?

There are certain things in your job that can lead to fatigue, discomfort, or pain when you do them **repeatedly or for long periods of time.**

Most common injuries:

Back  
Fingers/Hands  
Knees

These include:

- Exerting force to perform a task or to use a tool.
- Working in positions such as bending, stooping, twisting, and overhead reaching.
- Using awkward hand, wrist, elbow, or shoulder postures.
- Remaining in the same position for a long time with little or no movement.
- Continuous pressure from a hard surface or edge on any part of the body.
- Working in very hot or cold temperatures, produced by climate, equipment, or machines.
- Sitting on, standing on, or holding equipment or tools that vibrate.

In addition, stressful work situations can increase muscle tension and reduce awareness of proper work technique.



# Prepare Yourself for Work

Just as a runner prepares for a race by warming up, prepare for your workday by warming up and stretching. Warm up by walking, marching in place, or moving your arms in circles.

Once your muscles are warm:

- Stretch S-L-O-W-L-Y and hold each stretch 3-5 seconds.
- Stretch a few minutes before and during your workday.

**Caution:** Check with your doctor before exercising. If you feel discomfort while exercising stop immediately!

## Stretch the Lower Back and Hips



## Stretch each Arm and Shoulder



## Stretch each Leg



While you are off work, keep yourself physically ready for returning to work whether it's the next day or later.

# KEEP THE LOAD OR TOOL CLOSE TO YOUR BODY

**LIFT SMART:** Keep loads and tools close to your body. The farther the load or tool is from your spine, the greater the force on your lower back.



Carrying a 10 lb. object that is 25" from your spine is equal to 250 lbs. of force on your lower back.



Carrying a 10 lb. object that is 10" from your spine is equal to 100 lbs. of force on your lower back.

## AVOID HEAT ILLNESS



- Start work early in the day. Avoid extreme heat.
- Wear light-colored and loose-fitting clothing.
- Take frequent breaks in the shade.
- Drink water frequently before, during, and even after work. Drink water even if you are not thirsty.

### WHY?

Heat illness can cause fatigue, dizziness and painful muscle cramps.

**REMEMBER: HEAT ILLNESS CAN KILL IN LESS THAN ONE HOUR OF EXPOSURE TO EXTREME HEAT!**

# Make It Easy on Yourself



**LIGHTEN YOUR LOAD.** Plan what you are going to do. Carry only the tools or equipment you will need. Wear a tool belt that fits and distribute the tools and materials evenly.



**PROTECT YOURSELF.** Wear safety gear that fits. Protect your knees from hard, sharp surfaces by wearing knee pads. Wear appropriate eye protection to protect your eyes from debris and flying particles. Protect your hands from friction and sharp edges by wearing gloves.



**SELECT THE RIGHT TOOL.** Choose tools that fit your hand comfortably and have soft grips. A good handle grip prevents your hand from slipping while using the tool. Consider using tools that reduce the amount of force or movements you use. Keep tools well maintained.



**PRACTICE GOOD HOUSEKEEPING.** Pick up debris and scrap material to prevent trips, slips, and falls. Good housekeeping allows you and your equipment to get closer to your work.



**CHANGE BODY POSITIONS.** Working overhead, at floor level, or in cramped spaces forces the body into awkward postures. To relieve muscle tension and improve circulation, change body positions, alternate tasks, and stretch throughout the day.

# Be Aware

**If you experience symptoms, you must change the way you work or the tools you use. If you don't change, your symptoms may get worse and keep you from working at all.**

**You may have a problem if you have any of these symptoms:**

- Constant fatigue
- Cold hands
- Swelling
- Numbness
- Tingling
- Lack of energy
- Changes in skin color
- Weakness
- Loss of sensation
- Aching, burning, or shooting pain

**Where?**

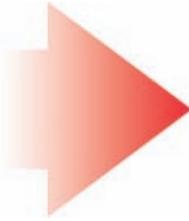
- Back
- Neck
- Shoulders
- Arms
- Hands
- Fingers
- Knees

**If you develop any symptoms:**

- Talk with your supervisor about your symptoms right away.
- Work with your foreman or supervisor to identify the cause of the problem.
- Follow your company's ergonomics program and its Injury and Illness Prevention Program.
- Always look for better ways to do your job.

## A TYPICAL WAY

Repetitious hand work may cause pain and result in permanent injury, limiting your ability to use your hands in any kind of work.

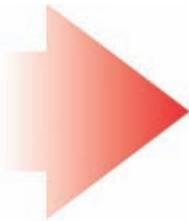


## A SAFER WAY



- Use hand tools or power tools whenever possible.
- Keep tools close to your body to reduce fatigue and increase productivity.

Lifting, pulling, pushing or carrying heavy loads may cause serious back injury.



### 3-Point Lift



- Use a three-point lift when handling heavy material by yourself.
- Stack or rack conduit at waist height to reduce bending and stooping.
- Use teamwork and mechanical aids whenever possible.

The force and awkward posture required to pull wire by hands is hard and tiring.



- Avoid manual wire pulling and use a tugger or a handtool whenever possible.
- Communication between the puller and feeder to coordinate movements will make the job easier and safer.
- Use lighter-weight tools.