

## ERGONOMICS

The goal of ergonomics is to reduce your exposure to work hazards. A hazard is defined as a physical factor within your work environment that can harm your body. Ergonomic hazards include working in awkward or uncomfortable postures and using excessive force or high repetition to complete a task. Ergonomics focuses on changing the work environment, modifying a task by using ergonomically friendly equipment or using different work procedures to improve efficiency and to reduce the risk of discomfort or injury.

Improve your ergonomic intelligence by avoiding these issues:

- Awkward postures
- Repetitive tasks
- Forceful exertions
- Lifting heavy objects

### Awkward Postures and Repetitive Tasks

An awkward posture or position occurs when a joint is held in a “non-neutral” position at the extreme ends of its range of motion. A joint becomes weaker as it is moved away from its mid-point. Awkward postures place the muscles out of balance, make tasks more physically demanding, and add stress to the body. The chance of injury increases when a joint is not in the neutral position and repetition is added to the equation.



The hand in the middle is in the neutral position. It is like holding a can of soda. The left and right hands are non-neutral and can lead to stress injuries over time.



Working with hands above the head or with the elbows above the shoulders for prolonged periods without frequent breaks increase injury risks.



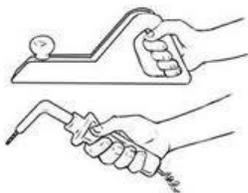
Working with the neck bent more than 45° without support or frequent posture changes for prolonged periods increase injury risks.



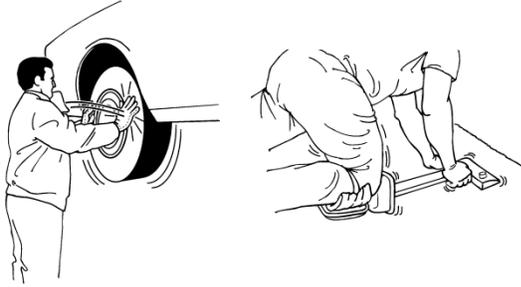
Squatting or kneeling to work repetitively or for prolonged periods increase injury risks

## Forceful Exertions

Force is defined as exerting effort to accomplish something. Shop, custodial, and landscape work involves various types of force, including high hand forces, contact pressure, and high force associated with lifting and carrying tasks. It is vital that you are able to identify and protect yourself against these hazards to avoid injury.



Grabbing and pinching objects repeatedly can lead to injury



Using your hands or other body parts as a hammer to strike objects into place will cause injury.



Labor intensive tasks also open the door for ergonomic injury.

### Common OPF tasks that cause Ergonomic injuries:

- Mopping, sweeping, dusting, cleaning, scrubbing, vacuuming
- Use of power equipment and tools (line trimmers, mowers, drills)
- Keyboarding
- Use of hand tools (saws, screw drivers, pruners, pliers)
- Above head work (dusting, wiring, installations)
- Lifting and carrying
- Shoveling debris

### Injury Prevention:

- Select tools with smooth, non-slippery, padded handles. Avoid tools with finger grooves, hard plastic handles, sharp edges, small or large diameter handles.
- Avoid gripping or pinching with your wrist in awkward positions.
- Take frequent breaks to stretch and rest hands.
- Remember to observe neutral positions.
- Alternate activities frequently throughout the day. **Rotate** heavy and/or **repetitive** tasks with lighter, less repetitive tasks.
- Use two hands to lift rather than one, even with light objects and tasks.
- Slide or push and pull objects instead of lifting.
- Avoid jerky movements when lifting objects.
- Use power devices when available.
- Keep reaching to a minimum. Position objects close to the body within easy reach.
- Use a step stool or ladder when necessary to reach above shoulder level, or to lift objects overhead
- Avoid using body part as impact devices

- Use vises, clamps, or jigs to stabilize objects to avoid prolonged forceful gripping with the hand
- Use Protective Equipment when possible (anti-vibration gloves, anti-fatigue mats)

## Work Station Setup

To understand the best way to set up a computer workstation, it is helpful to understand the concept of neutral body positioning. This is a comfortable working posture in which your joints are naturally aligned. Working with the body in a neutral position reduces stress and strain on the muscles, tendons, and skeletal system and reduces your risk of developing a musculoskeletal disorder (MSD). The following are important considerations when attempting to maintain neutral body postures while working at the computer workstation:



- **Hands, wrists, and forearms** are straight, in-line and roughly parallel to the floor.
- **Head** is level or bent slightly forward, forward facing, and balanced. Generally it is in-line with the **torso** (keep ears, shoulders and hips in line with each other).
- **Shoulders** are relaxed and **upper arms** hang normally at the side of the body.
- **Elbows** stay in close to the body and are bent between 90 and 120 degrees.
- **Feet** are fully supported by the floor or a footrest may be used if the desk height is not adjustable.
- **Back** is fully supported with appropriate lumbar support when sitting vertical or leaning back slightly.
- **Thighs** and **hips** are supported by a well-padded seat and generally parallel to the floor.
- **Knees** are about the same height as the hips with the **feet** slightly forward.

Regardless of how good your working posture is, working in the same posture or sitting still for prolonged periods is not healthy. **You should change your working position frequently throughout the day in the following ways:**

- Make small adjustments to your chair or backrest.
- Stretch your fingers, hands, arms, and torso.
- Stand up and walk around for a few minutes periodically.

## Take care of your Back

Many lifting injuries can be prevented by reducing the weight and number of lifts as much as possible, and by learning how to use appropriate lifting techniques when it is necessary to lift and carry objects.

Using proper lifting techniques can save you a great deal of pain and misery when you must lift or move objects by hand. Use forklifts, hoists, carts, dollies, and other types of lifting equipment when you have to lift or move heavy or bulky objects.

1. When a large or heavy load must be moved to another location, the route over which the object will be moved will be inspected first to make sure that there are no obstructions or spills that could cause slipping or tripping injuries. If the path is not clear, a different route will be taken.
2. The object to be moved will be inspected to determine how it should be grasped or if there are any sharp edges, slivers, or other things that could cause injury. If it is wet or greasy, it should be wiped dry so it will not slip. If the object is too heavy or bulky to be handled by one person, help will be sought.
3. When lifting, use the following techniques:
  - Spread feet comfortably apart; one alongside, and one behind the object.
  - Keep the back straight, nearly vertical if possible.
  - Keep elbows and arms in and hold the object close to your body.
  - Grasp the object securely.
  - Tuck your chin in.
  - Keep body weight directly over feet.
  - Lift smoothly by straightening your legs.
  - Reverse the procedures when lowering an object.
  - When changing direction while carrying an object, *never twist*. Turn the entire body, including the feet.
4. Seek assistance when necessary. Use mechanical lifting devices such as handcarts, dollies, forklifts, etc. as necessary.
5. When carrying loads with other workers, always give adequate warning of any action on your part, such as dropping your end of the load. Keep in step, this makes the load easier to handle.

