

# — Creating safer workplaces

*Techniques and exercises to improve workplace safety*

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# Good posture

1. Stand up straight with shoulders back (not rounded forward). Neck is straight so ears are directly over the shoulders. Weight is equally supported on both feet so hips are level. Keep knees slightly bent, not locked. Feet should be under shoulders with toes pointing forward. Maintain the natural curves of the spine or your “neutral” position.
2. Find the “neutral” position of the spine. Tilt your pelvis to create an arch in your lower back or a swayback position.
3. Flatten your lower back by tightening stomach muscles, pulling your stomach in like you’re pressing your belly button towards your back.
4. Move back and forth between position 1 and position 2 until you find a place between these two extremes where your back feels balanced and most comfortable. This is your “neutral” position.

**Fig. 1**



**Fig. 2**



**Fig. 3**



**Fig. 4**



# Adjusting your chair

1. Stand in front of the chair. Adjust the height so the highest point of the seat is just below the kneecap.
2. Sit so a clenched fist fits between the front edge of the seat and the lower part of the legs.
3. Adjust the backrest of the chair so it supports the hollow in your lower back.
4. Determine elbow height by holding arms straight at sides. Adjust work surface height to elbow height. If using a fixed height work surface, raise chair to get the proper arm and upper body position. Adjust chair height so elbows are about the same height as work surface.
5. Use a footrest if your feet don't rest flat on the floor or if there is pressure on the back of the legs. The footrest should be adjustable and support the entire foot.

**Fig. 1**



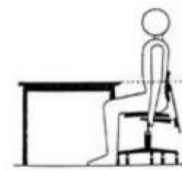
**Fig. 2**



**Fig. 3**



**Fig. 4**



## Work/desk area set-up

1. Sit up straight. Working in the right position helps decrease fatigue and overuse.
2. After adjusting chair (see Adjusting Your Chair section) the work surface is next. When you are sitting in your chair the work surface should be level with your elbow.
3. The computer equipment is next. If the computer is being used most of the time and a computer desk is not available, place the computer under or next to your desk.
4. Adjust the keyboard and mouse tray to ensure your elbows are bent at an “L” shape, your wrists are straight and your shoulders are relaxed.
5. The monitor should be 18 to 24 inches directly in front of the user, not at an angle, with your eyes looking at the center of the monitor with head slightly bent forward.
6. The phone should be placed within a 12-14-inch reach, so the user does not have to stretch to reach.
7. If the user is on the phone 4-8 hours a day, a headset can be provided to reduce neck stress from having the head in a bent position.
8. There should be good lighting around the work area.
9. All other frequently used items (pen, paper, etc.) should also be placed in close proximity.

# Carpal tunnel exercises

1. Stand with arms relaxed at your side.
2. Lift right arm out in front to shoulder level, palm of hand facing up. Spread fingers and bend wrist until fingers point to the floor.
3. Bring fingers and wrist up, forming a tight fist. Flex wrist toward you.
4. Bend elbow pulling fist toward the shoulder.
5. Rotate arm out towards side, arm still bent and fist held. Turn head toward fist.
6. Straighten elbows and fingers. Bend wrist, pointing fingers toward the floor. Slowly turn head toward opposite shoulder.

**Fig. 1**



**Fig. 2**



**Fig. 3**



**Fig. 4**



**Fig. 5**



**Fig. 6**



7. Bring both arms up to shoulder level and push back of wrists together, fingers pointing down toward the floor. Pull shoulders back.
8. Bring hands up into a prayer position and push palms and shoulders inward.
9. Keeping palms together, raise hands above your head.
10. Bring hands back behind your head, pulling shoulders back.
11. Stretch both arms out to the side to shoulder level, bending wrists down and fingers in a fist.
12. Straighten fingers, bring arms down by your side and then back behind you. Wrist bent up. Stretch chin up.
13. Relax arms by your side and shake out your hands.

**Fig. 7**



**Fig. 8**



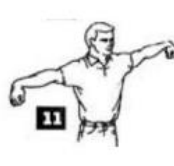
**Fig. 9**



**Fig. 10**



**Fig. 11**



**Fig. 12**



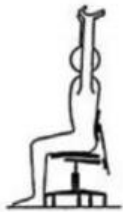
**Fig. 13**



# Workplace exercises

1. **Tall Stretch** — Interlock fingers, palms up. Stretch arms above the head until they are straight. Do not arch the back.
2. **Toe-In, Toe-Out** — Place feet shoulder-width apart, heels on the floor. Swing toes in, then out.
3. **Shoulder Roll** — Roll the shoulders. Raise them, pull them back, then drop them and relax. Repeat in the opposite direction.
4. **Side Stretch** — Drop left shoulder, reaching left hand towards the floor. Return to starting position. Repeat on right side.

**Fig. 1**



**Fig. 2**



**Fig. 3**



**Fig. 4**



5. **Back Curl** — Grasp shin, lift leg off floor. Bend forward (curling the back) reaching nose toward the knee.
6. **Ankle Flex and Stretch** — Hold one foot off the floor, leg straight. Alternately flex ankle (pointing toes up) and extend (pointing toes toward the floor). Repeat with the other leg.
7. **Leg Lift** — Sit forward on chair so your back is not touching the chair's back. Place feet flat on the floor. With a straight leg, lift one foot a few inches off the floor. Hold momentarily, return it to the floor and repeat with the other leg.

**Fig. 5**



**Fig. 6**



**Fig. 7**



# Back injury prevention

## Maintain normal spinal curves

- The spinal curves you can control are the cervical, thoracic and lumbar.
- Avoid twisting. Position your body so twisting is not needed. Pivot your feet so your toes point to what you are doing or what you are lifting.
- Avoid over-reaching. Over-reaching causes bending and twisting.
- Keep movements symmetrical to avoid bending and twisting.
- Choose appropriate work heights to avoid bending forward or backward.

## Dynamic stabilization

- Your trunk muscles support your spine.
- Keep your shoulders back and your spine upright by using your back muscles.
- Use your abdominal muscles to support your lower back.
- Make sure your muscles are engaged before exerting force.

## Keep loads close to the body

- At arm's length, the weight you are handling increases by a factor of 10.
- For example, held next to your body, a 10 lb. object puts 10 lbs. of pressure on your lower back. If you hold that same object at arm's length, the pressure on your lower back is 100 lbs.
- The pressure on your shoulders and elbows is also greater the farther away an object is held.

## Reduce unnecessary muscle strain

- Frequent position changes will allow your muscles to rest and recover.
- Use foot props when sitting and standing to reduce muscle fatigue and promote good posture.

## Keep movements smooth and controlled

- Plan your lift or carry before you do it.
- Test the weight of an object before lifting it.
- Maintain a wide base of support for better balance and greater control.
- Your feet should be at least as far apart as your shoulders when lifting/pushing/pulling.



## **Body mechanics: Principles for lifting**

- Stand with feet apart with one foot slightly forward to widen your base of support.
- Keeping your head and trunk upright and aligned helps keep your vertical gravity line inside the base of support.
- Maintain flex in your knees and hips to lower your center of gravity and decreases spinal disc pressure.
- Bring objects as close to your center of gravity as possible to help maintain stability and conserve energy.
- Elevate surface to waist height.
- Use legs to generate much of the effort and force.
- Don't rely on your back alone.
- Maintain neutral lumbar curve.
- Tighten abdominals while continuing to breathe.
- Shift weight from back leg to front leg and vice versa.
- Synchronize muscle contractions by counting (1, 2, 3 LIFT).
- Know your capabilities.
- Do not try to move, lift or transfer anything by yourself if you have any doubt about your ability.  
Move in a smooth and controlled manner. Avoid jerky or sudden motions, especially when moving heavy objects.

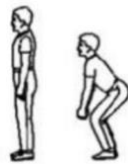
# Proper lifting techniques

1. Keep objects close to your body to reduce the force through the spine. Get close to the object before lifting and keep object close while moving it.
2. Take a slightly wider than shoulder width stance for a stable base of support. Maintain the normal curves of the back. Bend from the hips and not the waist to avoid extra stress on back muscles.
3. Don't let your knee come over the toe to avoid stress on the knee joint. Keep head up.
4. Don't bend at the waist.
5. Additional technique – The shoulder lift. Assume a half kneel position. Bring the object to the knee, then stand holding the object close to the body. Once standing, lift the object to the shoulder.

**Fig. 1**



**Fig. 2**



**Fig. 3**



**Fig. 4**



**Fig. 5**



# Median nerve exercises

1. Wrist in neutral, fingers and thumb in flexion.
2. Wrist in neutral, thumb in neutral, fingers extended.
3. Wrist and fingers extended, thumb in neutral.
4. Fingers and thumb in neutral.
5. Forearm in supination.
6. The opposite hand applies a gentle stretch to the thumb.

**Fig. 1**



**Fig. 2**



**Fig. 3**



**Fig. 4**



**Fig. 5**



**Fig. 6**

