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## The Back School Handout

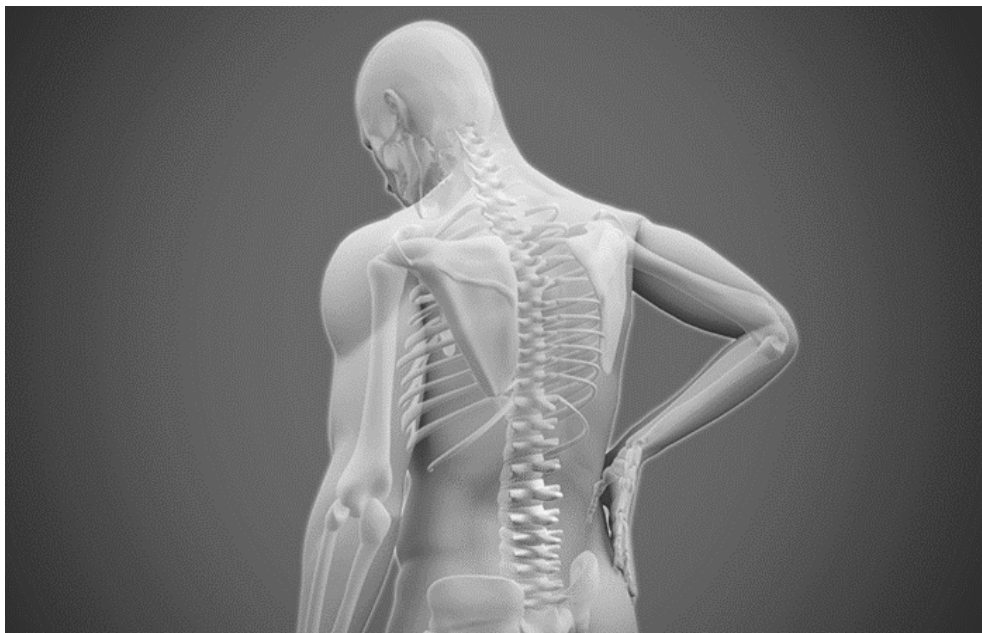


Photo Credit: <https://www.gettyimages.com/photos/human-spine?mediatype=photography&phrase=human%20spine&sort=mostpopular#license>

Research shows that patients who are in physical therapy and compliant with a home exercise program, incorporate safer/proper mechanics to protect the spine, will be more successful in decreasing symptoms, increasing core stability, and control therefore limiting pain and/or preventing injury.

This handout is issued to all back patients to encourage compliance and facilitate in patient education. We hope it is a tool that will aid in your recovery.

Please read through the material carefully and implement its principles to the best of your ability, aiding us in providing optimal care and achieving full recovery.



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## Diaphragmatic Breathing/Core Stabilization

- The diaphragm is the most efficient muscle of breathing.
- The diaphragm is a large dome shaped muscle located at the base of the lungs.
- Abdominal muscles help to move the diaphragm, giving you more power to empty your lungs.
- The transverse abdominis surrounds your mid-section and directly attaches to your spine.
  - Facilitation of these muscles is critical to spine stabilization.
- Diaphragmatic breathing/core stabilization is intended to help you use the muscles correctly while breathing to:
  - Strengthen the core
  - Decrease the work of breathing by slowing your breathing rate
  - Decrease oxygen demand
  - Use less effort and energy to breathe
- Diaphragmatic breathing technique:
  - Lie on your back on a flat surface, with knees bent, and your head supported.
    - You may use a pillow under your knees to support your legs
  - Place one hand on your upper chest and the other just below your rib cage. This will allow you to feel your diaphragm move as you breathe.
  - Breathe in slowly, through your nose, so that your stomach moves against your hand. The hand on your chest should remain as still as possible.
  - Tighten your stomach muscles, letting them fall inward as you exhale through pursed lips. The hand on your upper chest must remain as still as possible.

Photo Credit: <http://c1healthcentre.co.uk/how-changing-how-you-breathe-can-improve-your-health/>



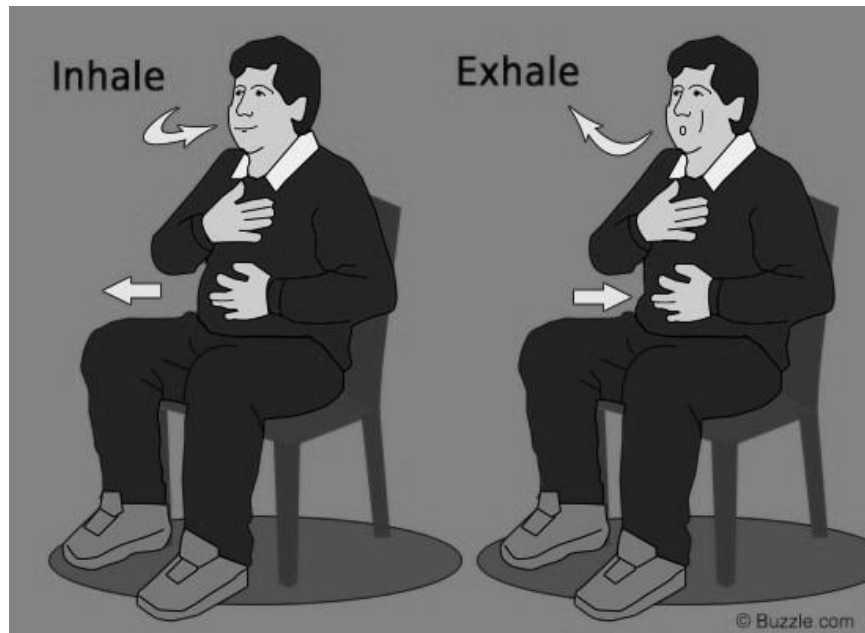


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- When you first learn diaphragmatic breathing technique, it may be easier for you to follow the instructions lying down. As you gain more practice, you can try the diaphragmatic breathing technique while sitting in a chair.
- To perform in a chair:
  - Sit comfortably, with your knees bent and your shoulder, head, and neck relaxed
  - Place one hand on your upper chest and the other just below your rib cage. This will allow you to feel your diaphragm move as you breathe.
  - Tighten your stomach muscles, letting them fall inward as you exhale through pursed lips. The hand on your upper chest must remain as still as possible.



- ❖ **Practice 5-10 minutes about 3-4 times a day. Gradually increase the amount of time you do the exercise.**



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## Trigger Points

- Discrete, focal, hyperirritable spots located in a taut (tight) band of skeletal muscle.
- Produce pain locally and in a referred pattern
- Often accompany chronic musculoskeletal disorders.
- May be caused by stress to muscle fibers due to:
  - acute (new) trauma or
  - repetitive microtrauma
- Most commonly effects muscles used to maintain posture (neck, shoulders, pelvic girdle)
- Palpation (light touch) of the trigger point will elicit pain directly over the affected area and/or cause radiating pain toward a zone of reference.
- You may have:
  - Regional pain
  - Persistent pain
  - Referred pain
  - Muscle spasms or tightening
  - Tension headaches
  - Decreased range of motion in affected muscles.



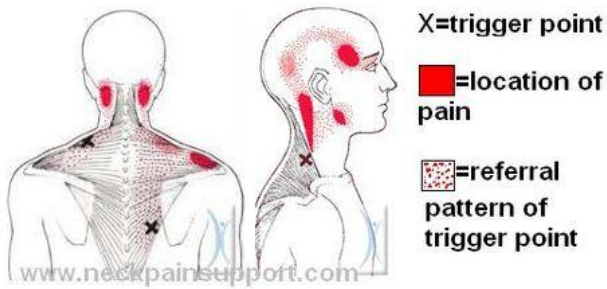
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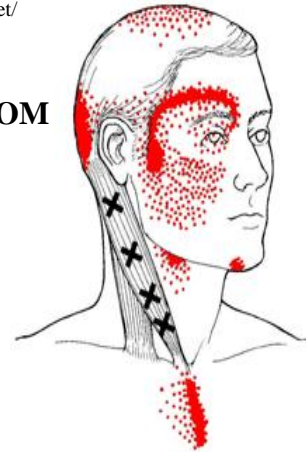
## Common areas of complaint

Photo Credit: <http://www.triggerpoints.net/>

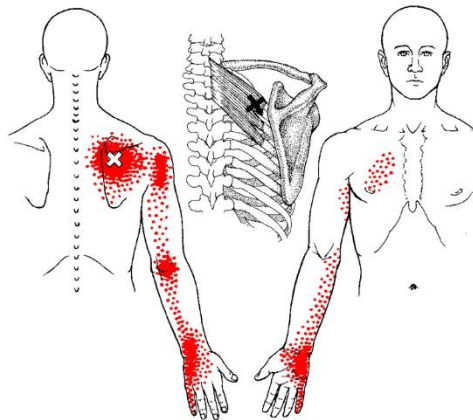
### PAIN IN THE UPPER TRAPEZIUS MUSCLE



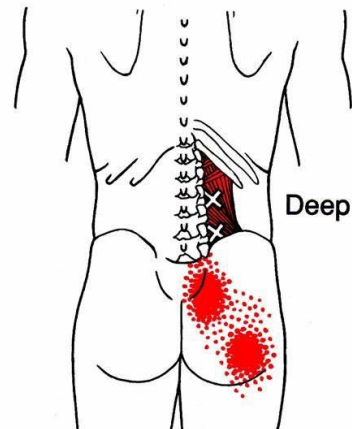
### SCOM



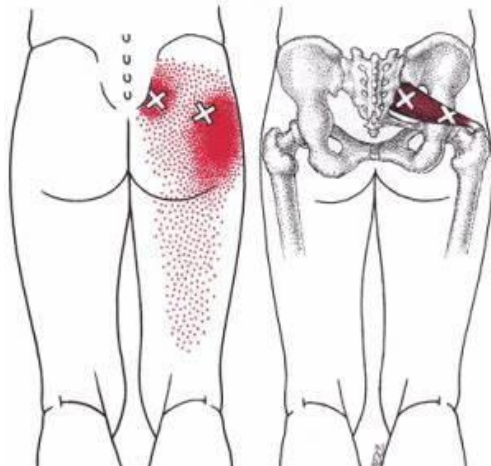
### Rhomboids



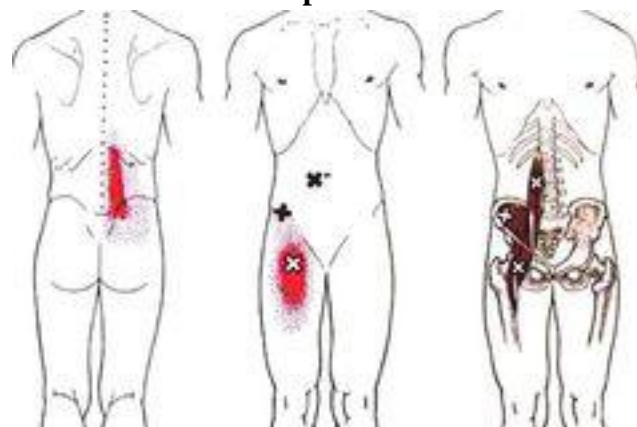
### Quadratus Lumborum



### Piriformis



### Iliopsoas



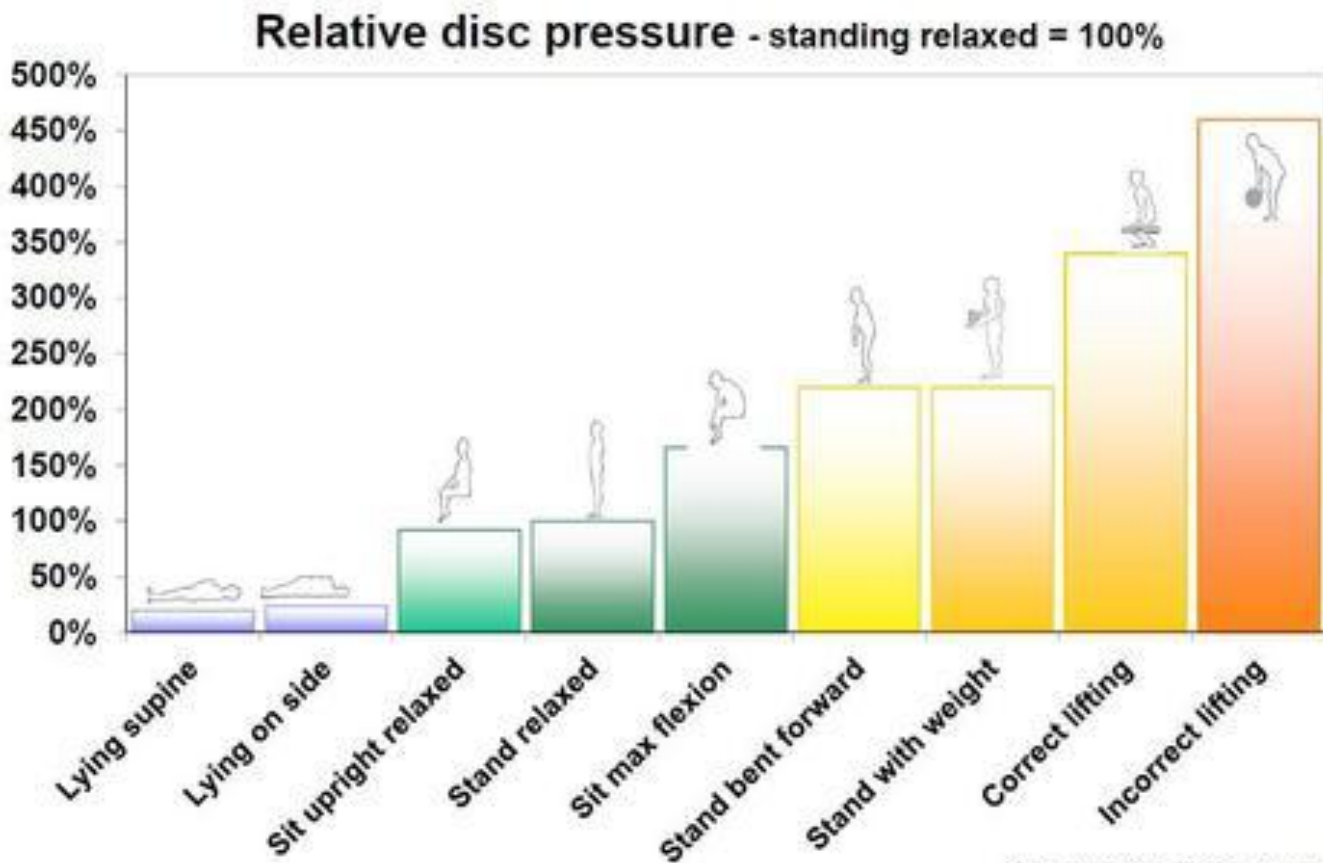


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## Disc Pressure in various positions

- The following illustration depicts compressive forces on the disc in various positions.
- When lying supine (on your back), the spine is at rest in a neutral position, allowing the spine to unweight and the disc to imbibe fluid and expand
  - Example: a sponge taking in water when put in the sink
- Understanding these positions and the stress they place on your back can assist you in assuming appropriate positions during daily life to protect your back.



Source: Wilke et al, Spine 24, #8, P755, 1999



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## Posture

“Position or attitude of the body”

- Alignment of the body parts, whether standing, sitting, or lying.
- Impairments of joints, muscles or connective tissues may lead to faulty posture
  - Or faulty posture may lead to impairments of joints, muscles, or connective tissues causing discomfort and pain!
- Gravity places stress on our structures (muscles/bones) that are responsible for maintaining our bodies upright position, providing a continual challenge.
- Good posture benefits:
  - Bones and joints are in correct alignment, allowing muscles to work properly
  - Decreases stress on ligaments holding the joints of the spine
  - Prevents fatigue due to muscles being used efficiently, thereby decreasing use of energy
  - Prevents back ache and muscular pain
  - Contributes to a good appearance!
- Poor posture can affect you by:
  - Misaligning musculoskeletal system
  - Wear and tear on your spine, making it more fragile and prone to injury
  - Cause neck, shoulder, and back pain
  - Decrease flexibility
  - Affect how your joints move
  - Affect balance – increasing risk of falls
  - Affect digestion of food
  - Make it harder to breathe
  - Headaches

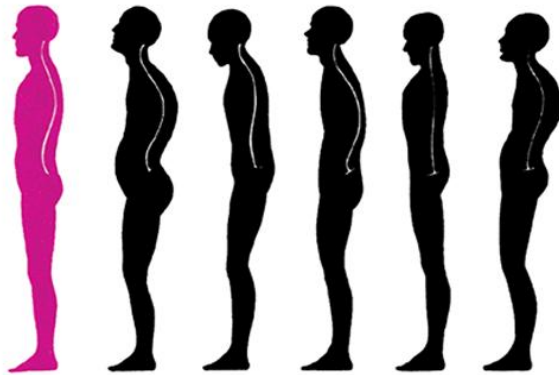


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## Check your posture

### Common Postural Problems



Correct Posture   Hollow Back   Flat Pelvis   Slumping Posture   Military Posture   Round Shoulders  
 Photo Credit: <http://www.ohpkelowna.com/postural-strain-kelowna-chiropractor/>

- ✓ Head Up
- ✓ Shoulders back comfortably
- ✓ Stomach tucked
- ✓ Shoulders, hips, and ankles in a straight line

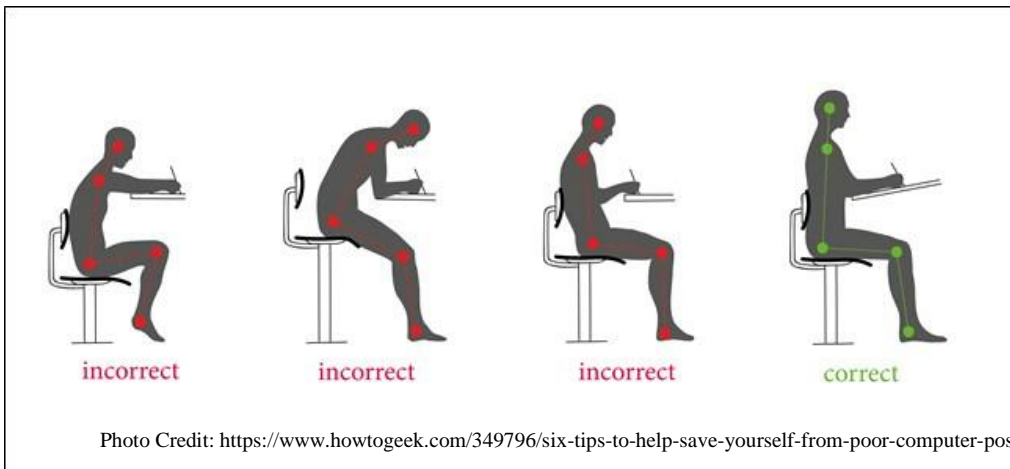


Photo Credit: <https://www.howtogeek.com/349796/six-tips-to-help-save-yourself-from-poor-computer-posture/>

- ✓ Head up
- ✓ Shoulder and Hips in line
- ✓ Hips and knees in straight line
- ✓ Knees to ankles in a straight line
- ✓ Feet flat



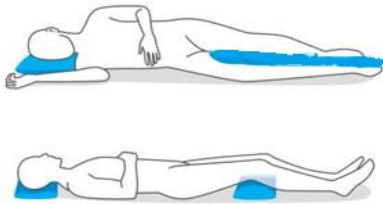


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✔ Correct Sleep Posture



- ✔ Neck in neutral
- ✔ Pillow between or under knees to ensure pelvis/low back are neutral
- ✔ Pillow should be positioned from knee to ankle when on your side.

Photo Credit: <https://www.biomotionpt.com/best-sleeping-positions-for-neck-pain-and-headaches/>

## Lifting

- Avoid lifting heavy objects.
  - If something is more than half your body weight, get help or use equipment
- When lifting
  - Bend your Knee – not your waist
  - Keep your back straight
- Do not twist as you lift
  - To turn, pivot your feet
- Do not lift an object above waist level
  - This increases the arch of your back
- Keep objects close to you (center of gravity = belly button) \*Applies to lifting or carrying
- Tighten your stomach muscles when you lift

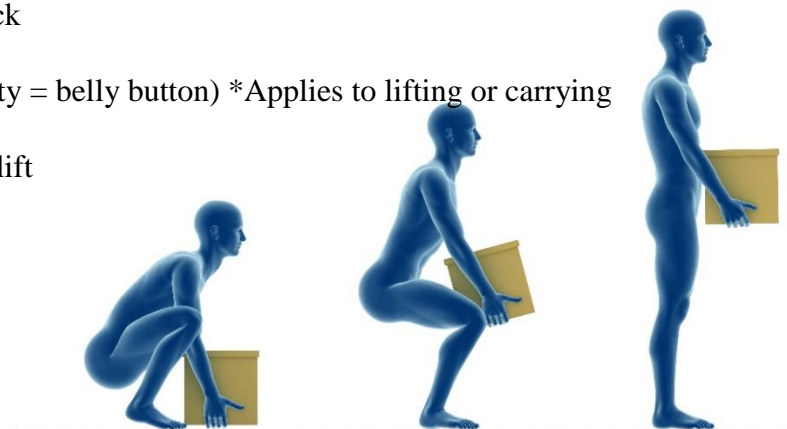


Photo Credit: <http://www.msuergonomics.com/lifting1>

## Desk Posture



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# CORRECT SITTING POSTURE

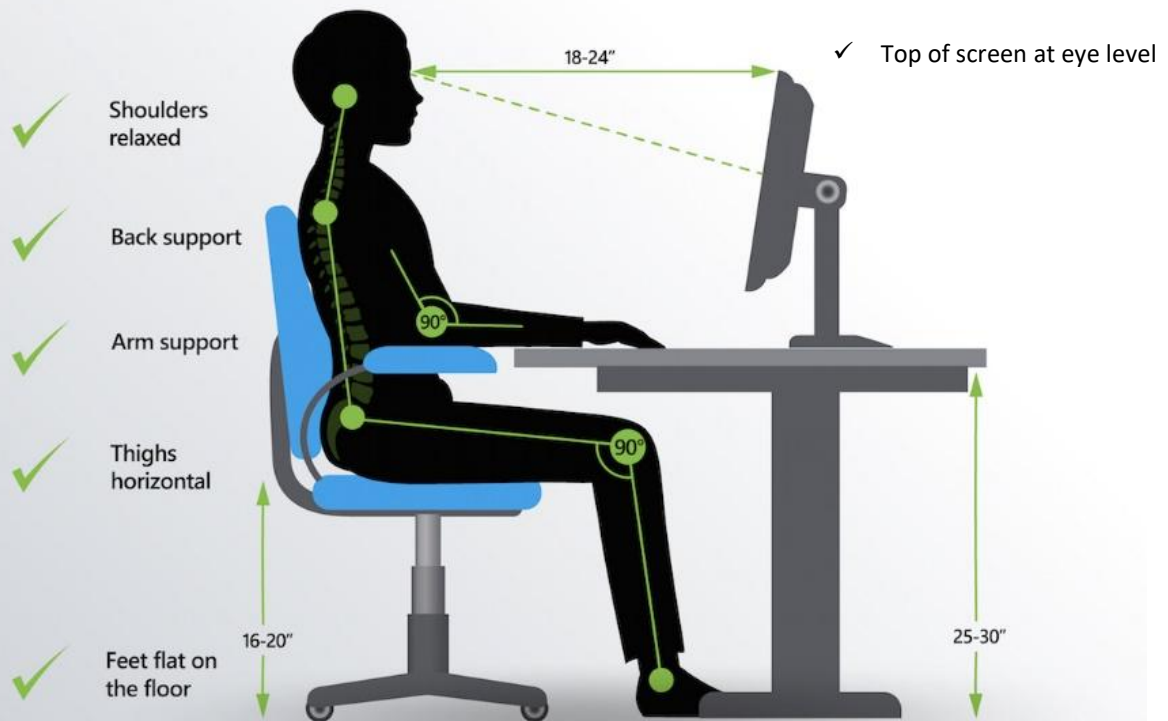


Photo Credit: <https://www.vectorstock.com/royalty-free-vector/ergonomics-correct-sitting-posture-vector-12589213>



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## Driving Posture



Photo Credit: <http://www.lexomans.com/manguide-625.html>

1. Seat back in upright position with full contact/rest on seat
2. Seat position with safe and easy reach to the pedals
3. Seat back with proper lumbar support
4. Steering wheel height appropriate level to reach wheel without extended arms
5. Head rest and neutral neck position with shoulders relaxed, close to the body
6. Hip angle 90-110 degrees