The Office Athlete: Improving Posture (and Preventing Pain) in an Office Setting

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Objectives

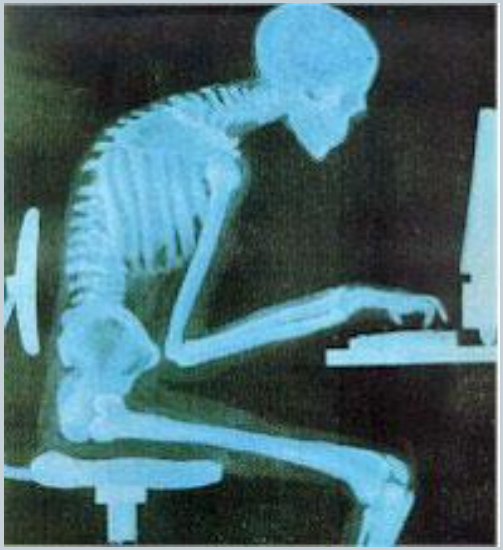
- Understand the biomechanics behind postural dysfunction of the cervical, thoracic, and lumbar spine as it related to sitting posture.
- Be aware of pathologies related to postural dysfunction, such as neck pain, jaw pain, shoulder pain, and back pain.
- Practice some interventional exercises that can be completed at your desk to avoid or lessen postural dysfunction.
- Be conscious of the ergonomics equipment available for their work environment, and how to organize their desks to maintain proper posture.

Survey Results

Neck, back, jaw, shoulder, or other pain from:	
Poor Posture	91%
Sitting at a Desk	91%
Prolonged Computer Work at a Desk	100%

Why Office Athletes?

- 1 in 4 adults spend around 70% of their time sitting.
- 6 out of 10 adults utilize computers on the job.



http://www.regionalpt.com/blog/m.blog/23/the-office-athlete

References: 1

When the body is working correctly…

- "Optimal Posture"[2] = good skeletal alignment and musculoskeletal balance that will protect against deformity or injury.
- Skeletal System: structural support and attachment sites for muscles
- Muscles: Maintain body position and posture
- Tendons: transfer large muscle forces to bone for movement

References: 2,3,4,5

What Causes Poor Posture?

- Head = 1/7th of body weight
- Leaning forward for long periods = 3.6 times more force compared with correct standing posture
- Eventually causes the head to stay forward and directs the face upwards.

References: 6

What Causes Poor Posture?

- Due to the forward head posture:
  - The jaw may be distorted, affecting it's function
  - An "upper-crossed syndrome"[6] causes rounded shoulders.
- The lower back or lumbar spine is flexed, which causes deconditioning of the postural muscles and added pressure on other structures (discs, ligaments, etc)

References: 6,7,8,9,10,11,12

Poor Posture Pathologies: Neck Pain

- Common among “office athletes”
- Changes in neck muscle control due to the forward head posture leads to pain
- Long hours of computer work or repetitive motions can contribute
- Neck muscle impairments, leading to postural discrepancy can also cause headaches.

References: 6,7,13,14,15,16,17

Poor Posture Pathologies: Jaw Pain

- Also called "Temporomandibular Joint Dysfunction"[18] or TMD
- A forward head posture causes stress on the jaw's ligaments, disk, and muscles
- Jaw "rests" [18] in "open position" [18], overusing mastication muscles.
- Dizziness, headache, "popping" [18] jaw sounds, and difficulty opening mouth to talk or eat are other symptoms.

References: 6,7,18

Poor Posture Pathologies: Shoulder Pain

- Pathologies include shoulder impingement.
- Pain caused by forward head posture moving towards rounded shoulders, or repetitive movements.
- Work environments tend to be the cause:
  - Awkward postures
  - Psychosocial/Psychological job demands

References: 6,19,20,21,22,23

Poor Posture Pathologies: Lower Back Pain

- Can be caused by a prolonged forward bent position for longer than two hours each day
- Deconditioning of the postural muscles puts additional stress on discs and ligaments, causing pain.

References: 12,24

Postural Dysfunction Risk Factors

- Individual factors: Age, gender, BMI, smoking, exercise habits
- Work related risk factors
  - Sitting duration
  - Workplace design
  - Unchanging arm and neck postures
- Psychological/Psychosocial Work Environments
  - Stress
  - Job demands
  - Job satisfaction
  - Depression

References: 15,19,20,21,22,24,25

Desk Exercises

- Neck stretches: Upper Trap and Levator
- Shoulder rolls
- Chin tucks
- Scapular squeezes
- Pelvic tilts

References: 13,26,27,28,29

Workstation Set Up: Sitting Posture

- Feet flat on the floor/foot rest, legs uncrossed
- Ankles in front of the knees
- Hips at a higher level than knees
- Lower back supported with back rest
- Shoulder relaxed, forearms parallel to ground

References:30,31

Workstation Set Up: Sitting Posture

- Office Chairs
  - Adjustable height
  - "Seat pan"[32,33] depth and size

References: 32,33

Workstation Set Up: Desk Set Up

- Supportive chair that maintains spinal curves
- Computer monitor at arm's length away, placed directly behind the keyboard.
- Top of computer screen slightly below eye level
- Keyboard and mouse should be at the same height and be easily reachable (keyboard trays might be useful)
- Telephone should be placed on speaker or a headset utilized to avoid holding phone between head and neck.
- Have objects you use most often, like your telephone, stapler, or other materials, close by to lessen reaching

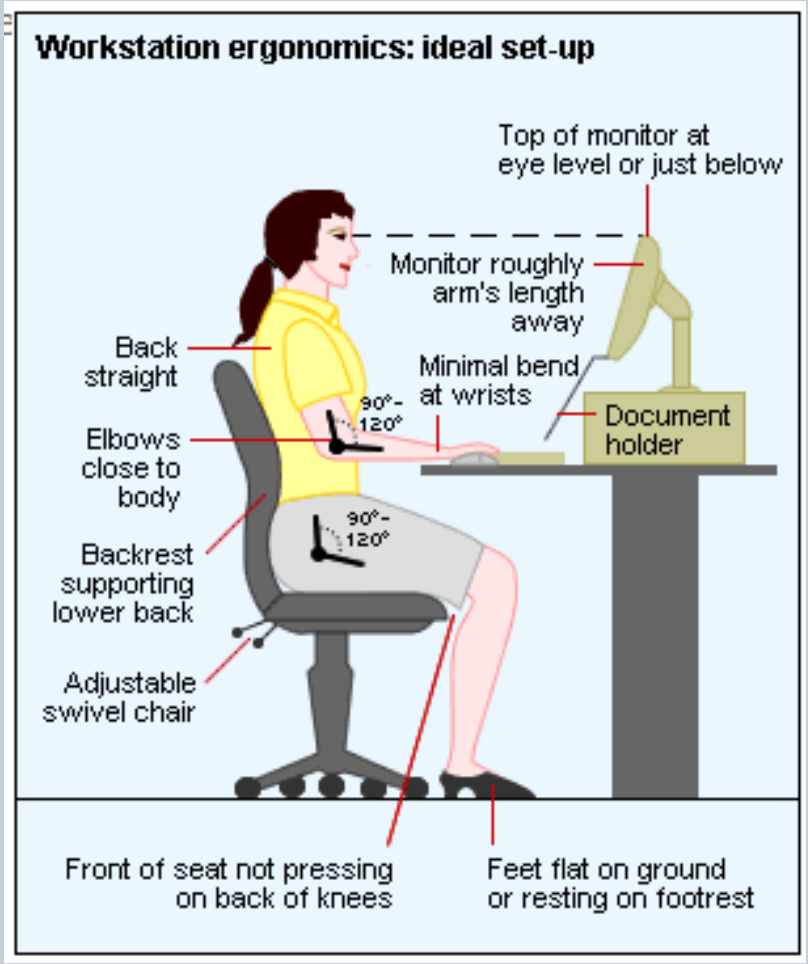
References: 32,33,34,35

Work Station Set Up: Other Things to Consider

- Lighting
  - Natural lighting is the best choice
  - Take control of the lighting in your office
  - Adjust your computer monitor

References: 36,37,38,39

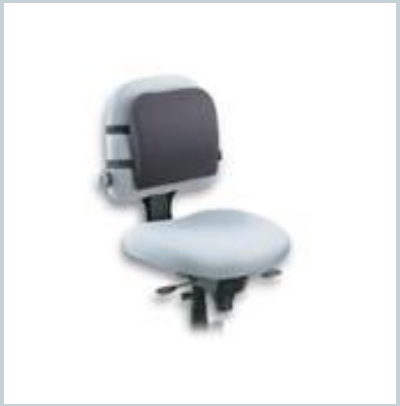
Work Station Set Up



References: 31

Work Station Set Up: Ergonomics Equipment/Accessories

Chair Options



Sit to Stand Workstations

Foot Rests

All pictures taken from: https://www.safety.duke.edu/ergonomics/computer-ergonomics/computer-office-accessories

References: 12,31,34,40,41

Work Station Set Up: Ergonomics Equipment/Accessories

Document Holders

Monitor Risers

Telephone Head sets

All pictures taken from: https://www.safety.duke.edu/ergonomics/computer-ergonomics/computer-office-accessories

References: 31,34

QUESTIONS?

A BIG THANK YOU TO MY CAPSTONE COMMITTEE!!:

MIKE GROSS, PT, PHD, FAPTA

PHIL WITT, PT, PHD

GEORGIA NJAGU

“CELEBRATION OF KNOWLEDGE”

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