ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Εθνικόν και Καποδιστριακόν Πανεπιστήμιον Αθηνών

Management of Musculoskeletal Discomfort in the Workplace

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Purpose of the Health Education Program

- Acquire knowledge
- Adopt correct posture
- Reduce symptoms of pain and discomfort from the musculoskeletal system
- Prevent the occurrence of musculoskeletal diseases
- Manage musculoskeletal discomfort
- Increase well-being
- Improve quality of life

Ergonomics



Ergonomics is an applied science focused on improving human performance, health, and well-being by contributing to the design of tools, machines, methods, and the work environment. The core principle of ergonomics is to place the needs and capabilities of the human user at the center of design. The outcomes of ergonomic interventions relate to morphology, technology, physical parameters, and aim to enhance the efficiency and reliability of the overall human-machine system.

Application of Ergonomics in Daily Life: Where, How, and When?

- **Daily Life**

Driving, household chores, using mobile phones, handling objects (e.g., kettles), using public transport, footwear, wallet in the back pocket

- **Work**

Work posture, computer screen setup

Benefits of Adopting Correct Posture

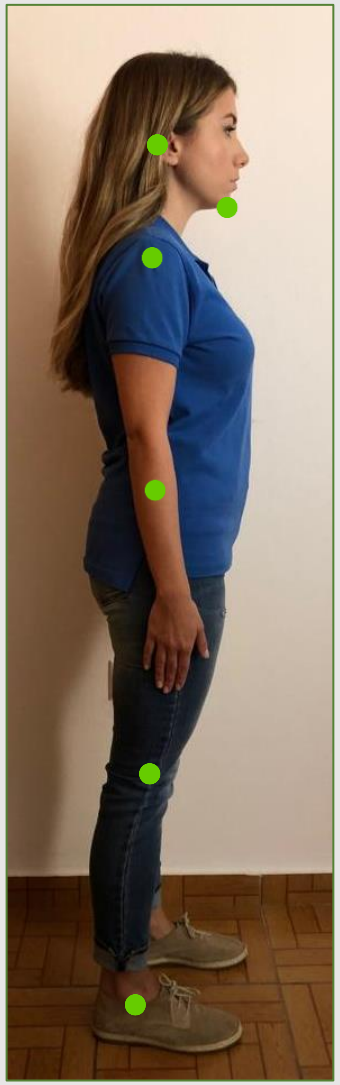
- Minimizes the strain on the supportive muscles of the spine and ligaments
- Maintains correct alignment of joints and bones for optimal muscle function
- Reduces strain on soft tissues and joints
- Minimizes injuries
- Prevents muscle strain as muscles work more efficiently with less energy
- Prevents muscle strains, overuse syndromes, and pains in the back, waist, neck, and limbs
- Contributes to maintaining good health, appearance, and self-confidence
- Improves breathing and maintains good blood circulation

Looking at the Spine from Behind: It Should Be Straight

- Looking at the spine from the side, it has four natural curvatures: two that curve forward and two that curve backward.
- Cervical spine: Lordosis
- Thoracic spine: Kyphosis
- Lumbar spine: Lordosis
- Sacrococcygeal spine: Kyphosis



Correct Posture: Standing Position



- ✓ Shoulders back and relaxed (not tense)
- ✓ Chest out
- ✓ Head aligned with the shoulders, hips, and ankles
- ✓ Keep the chin parallel to the ground
- ✓ Activate the abdominal muscles (stomach and glutes aligned with the rest of the body)
- ✓ Maintain the curves of the spine
- ✓ Knees slightly bent and open at hip-width (to protect the lumbar spine)
- ✓ Wear appropriate footwear
- ✓ When walking, the heel should strike first, followed by the toes

Avoid:

- ❖ Hunching the shoulders forward
- ❖ Standing in a static position for long periods
- ❖ Using inappropriate footwear

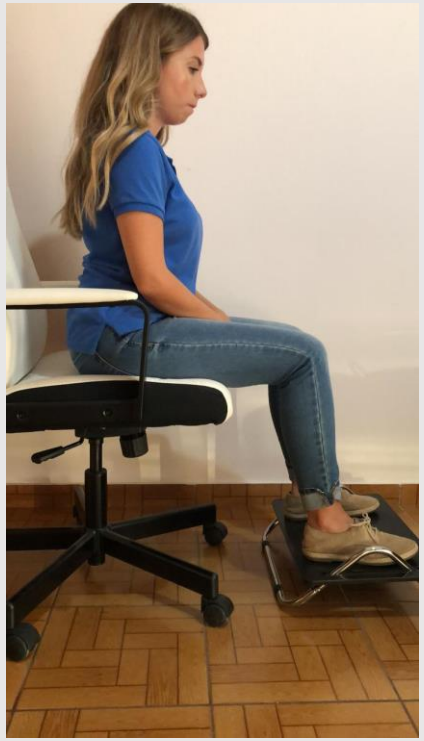






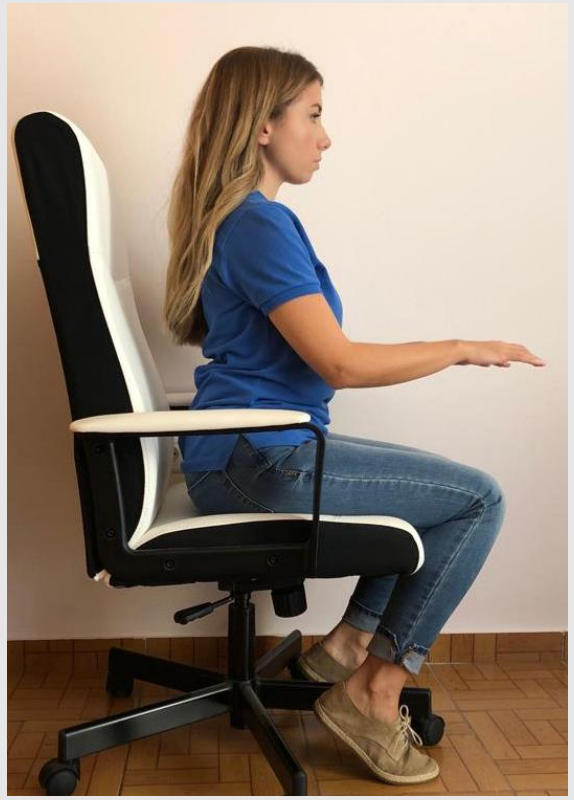
Correct Posture: Sitting Position

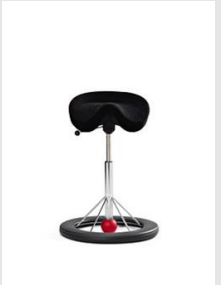
- ✓ Maintain the curves of the spine
- ✓ Avoid bending the head forward or backward
- ✓ Avoid hunching the shoulders forward
- ✓ Keep knees slightly lower than the hips
- ✓ Keep feet in contact with the floor (use a footrest if necessary)
- ✓ Do not cross your legs (to maintain circulation)
- ✓ The recommended posture is the rider's position



Rider's Position

- Sit on the edge of the seat
- Raise the seat enough to pull your feet under it
- Firmly plant your feet on the ground or bend them under the seat
- Do not use the backrest
- Sit forward and close to the keyboard
- Feet open at hip-width
- Activate the abdominal muscles
- Maintain the curves of the spine
- Keep the head and shoulders relaxed
- The seat should be able to tilt forward and down



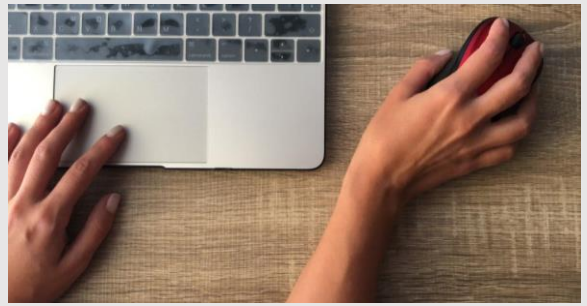


Correct Posture:
Working in a Seated Position with a Computer

- The chair should support the lower back, and the back should be in an upright position (use a special lumbar support cushion)
- The adjustable height of the chair helps choose the correct height regardless of the user's height
- Arms should be horizontal (elbows at 90 degrees)If feet do not rest on the floor, a footrest is essential
- Eyes should be level with the top of the screen to look either straight ahead or slightly downward and at a distance of 60-70 cm
- The keyboard should be directly in front of the user, with the mouse next to it
- Wrists should be in a neutral position

How to Properly Adjust Your Work Position

- ✓ Correct desk and seat height
- ✓ Reduce strain on shoulders and neck by ensuring forearms are supported when using the keyboard
- ✓ The desk should provide adequate workspace



When the keyboard is in the correct position:

- Shoulders are relaxed, and elbows are close to the body
- Elbows bent at 90 degrees or a slight angle
- Wrists are in a natural position (no extension or ulnar deviation)

How to Properly Adjust the Computer Screen

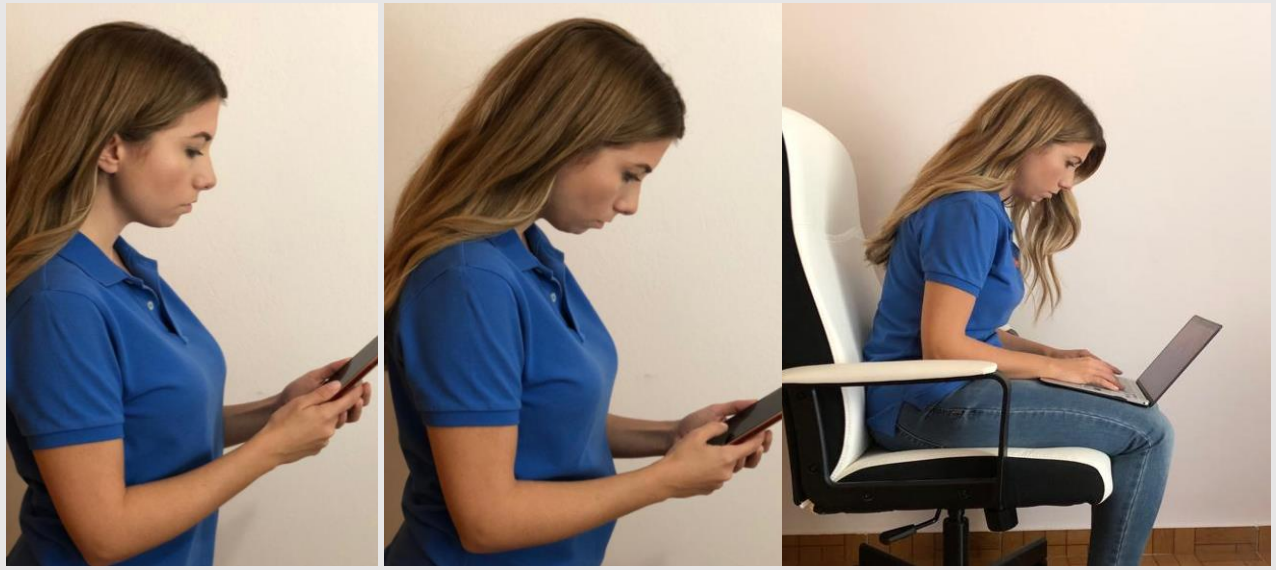
- Once you have the correct work position:
- Adjust the screen so that your gaze is directed downward. When looking straight ahead, your gaze should fall on the top edge of the screen. (This is a comfortable position for the eyes and neck).
- Align the centerline of the body with the bottom center of the screen and keyboard
- The screen distance should be about 60-80 cm (arm's length)
- Natural light should come from the side (to reduce glare)

Correct Posture:
Using Smartphones and Tablets at Work



Head position and neck weight:

0°	15°	30°	45°	60°
5,4 kgr	12kgr	18 kgr	22 kgr	27 kgr



- If the above is not possible, the screen should be at eye level, and elbows should be close to the body.
- The tablet should be used with support on a surface, and the screen should be in a straight line with the eyes and slightly downward.
- The head should be in a neutral position and not tilt forward.
- The chin should be parallel to the ground.
- Shoulders should be relaxed.

Organizing the Workspace







- The workspace is like an airplane cockpit.
- All objects used daily should be within arm's reach to avoid strain.
- Place less frequently used items outside arm's reach.
- Store items that are not used frequently.
- Place the stationary phone opposite the hand used for the mouse.



Load Management

- Stand close to the object, bend the knees, and keep the back straight.
- When lifting the load, push more with the legs than with the back.
- Keep the load close to your body when moving it.
- Avoid bending your waist while simultaneously twisting your torso.
- Push a heavy load instead of pulling it.

Tips for Reducing Musculoskeletal Strain

- Modify body posture during work when possible (stand-up meetings, phone calls while walking).
- Apply ergonomic knowledge throughout the day.
- Alternate between sitting and standing positions (short breaks) every half hour.
- Take every opportunity to move (stairs instead of elevators).
- Adopt a healthy lifestyle (exercise, maintain normal weight, etc.).
- Apply the 20*20*20* rule for eye rest.

Daily Application During Work

- No equipment required
- No need for the employee to leave the workplace
- Can be applied at the desk
- Short breaks
- Repeat 2-4 times a day

Exercise Application During Work

- Adopt correct posture
- Activate abdominal muscles
- Avoid sudden movements
- Breathe normally
- Gradually increase repetitions and duration of application
- If pain or discomfort occurs, avoid performing the exercises

Suggested Exercises (Neck)

- Stretch the neck forward (5-10 seconds)
- Stretch the neck to the right (5 seconds)
- Stretch the neck to the left (5 seconds)







Suggested Exercises (Neck)

- Rotate the neck (5-10 seconds)
- Strengthen the neck muscles by applying pressure on the chin backward (5-10 repetitions)





Suggested Exercises (Neck)

- Stretch the neck forward and left (5 seconds)
- Stretch the neck forward and right (5 seconds)





Suggested Exercises (Shoulders, Back, Neck)

- Warm-up shoulders forward (5-10 repetitions)

  Warm-up shoulders backward (5-10 repetitions)





Suggested Exercises (Upper Limbs)

- Warm up the arms with wrist rotations (5-10 seconds)
- Stretch fingers with the palm facing up, left hand (5 seconds)
- Stretch fingers with the palm facing up, right hand (5 seconds)







Suggested Exercises (Upper Limbs)

- Stretch fingers with the palm facing down, left hand (5 seconds)
- Stretch fingers with the palm facing down, right hand (5 seconds)





Suggested exercises (upper back)

- Upper back stretch, with an effort to bring the shoulder blades together and simultaneous resistance with hands joined and stretched backward (5 seconds)
- Stretch for the back, shoulders, and upper limbs by interlocking the fingers and holding them stretched forward at chest height (5 seconds)





Suggested exercises
(upper back, neck, arms)

- Stretch for the back, shoulders, and upper limbs by interlocking the fingers behind the head. Apply pressure between the shoulder blades while simultaneously pressing the head backward (5 seconds)



Suggested exercises (upper body)

- Seated side twist upper body_right side (5 seconds)
- Seated side twist upper body_left side (5 seconds)
- Seated rotating upper body and stretch lower back to the right side (5 seconds)
- Seated rotating upper body and stretch lower back to the left side (5 seconds)









Suggested exercises (legs, lower back)

- Seated lift left leg _Knee to chest left (5-10 seconds)

- Seated lift right leg _ Knee to chest right (5-10 seconds)





Suggested exercises
(arms, back, neck)

- Seated forward bending stretch for upper body and arms (5 seconds)
- Seated stretch arms upwards (5 seconds)
- Seated stretch arms forward while stretching the upper back area (5 seconds)









Suggested exercises
(arms, back, neck)

- Prayer stretch (5 times)
- Scapular rotation and shoulders rolls (5 times)






Ευχαριστώ για την προσοχή σας

