

GO FIT for a functional spine!!!

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Experimental group: 5 weeks therapeutic exercise on site, 15 sessions

Control group: 5 weeks recreational physical activity, 15 sessions

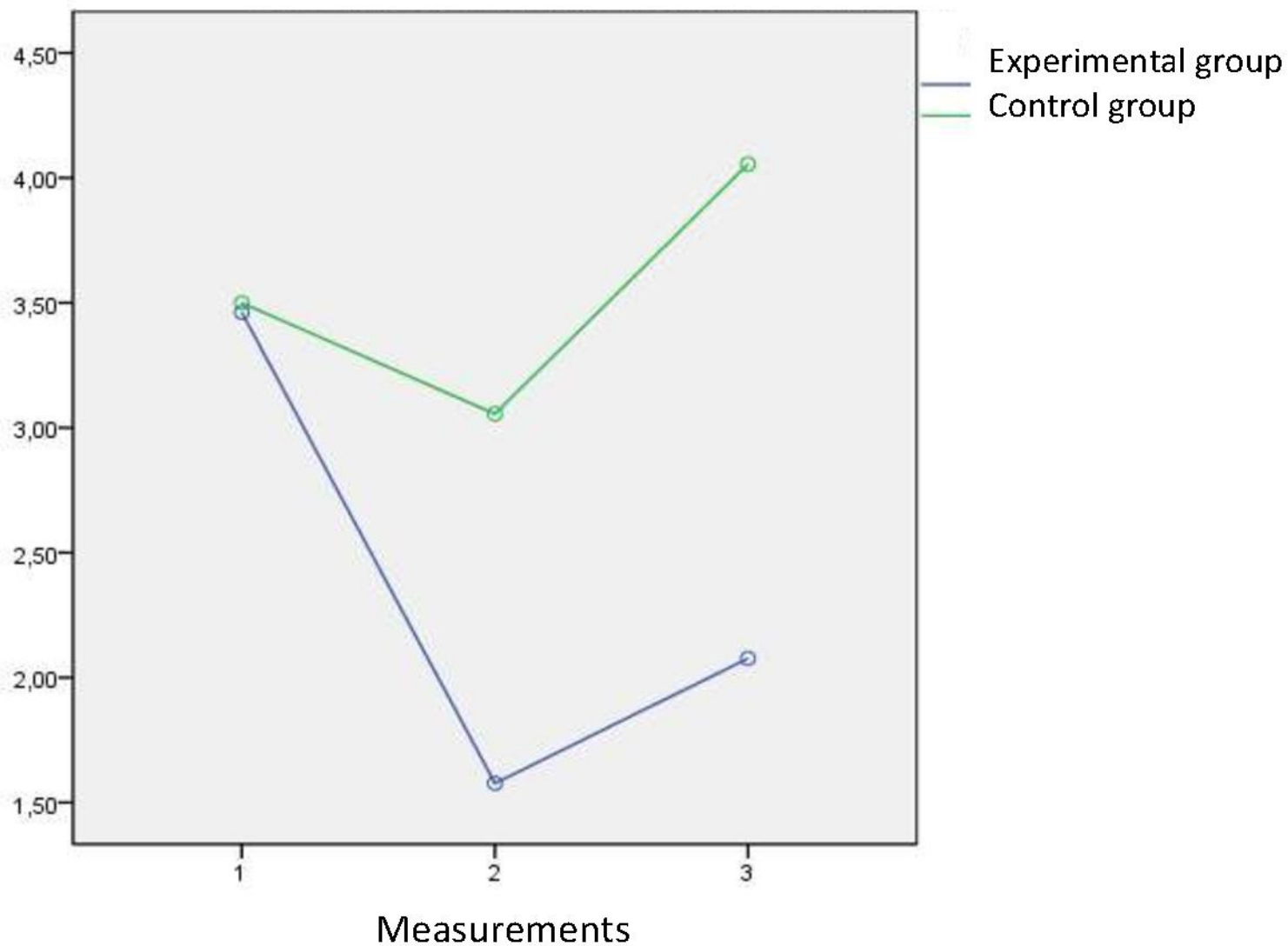
ALL: education on appropriate sitting position

Measurements: Pre-post-Retention (3 weeks after the end)

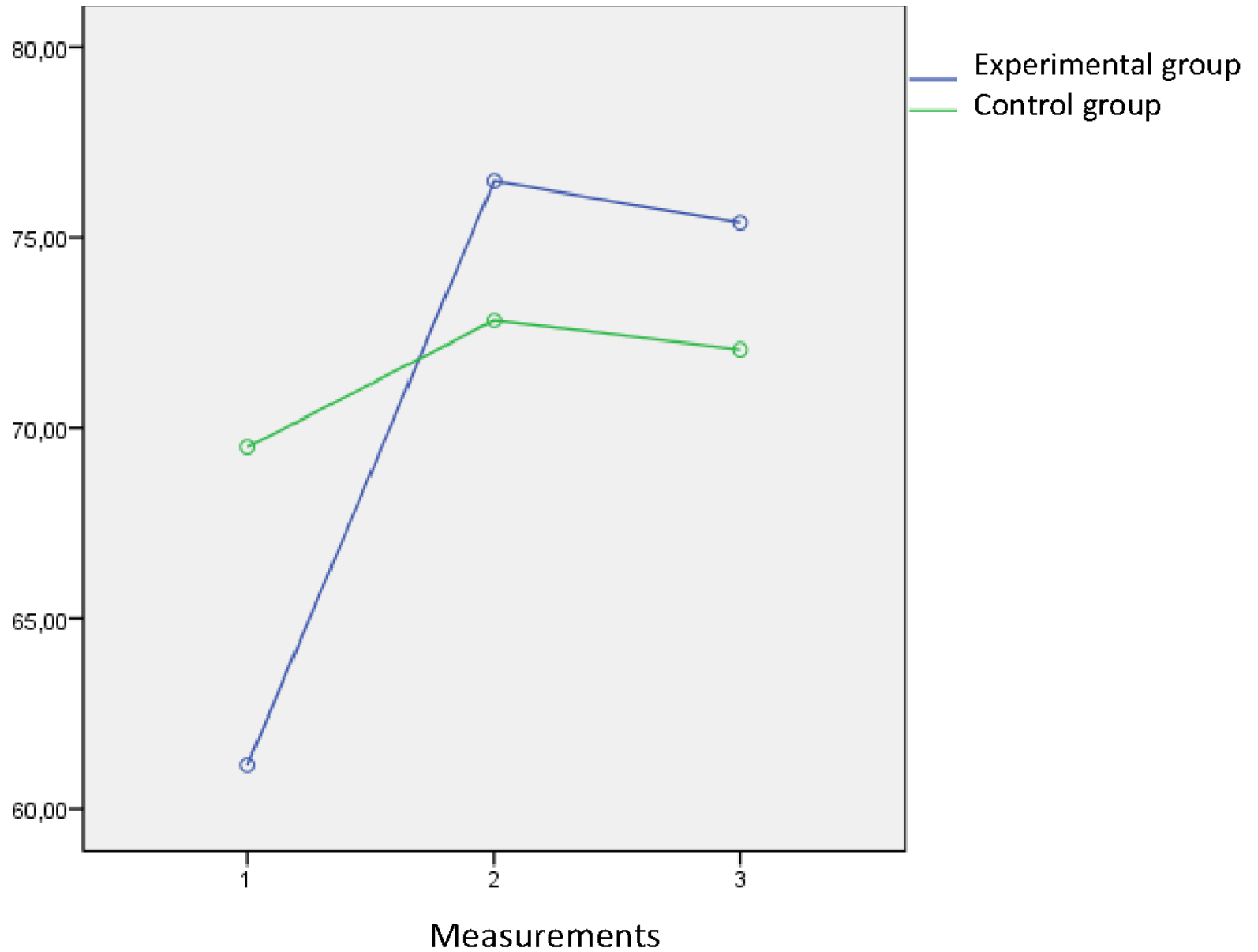
5 weeks therapeutic exercise on site



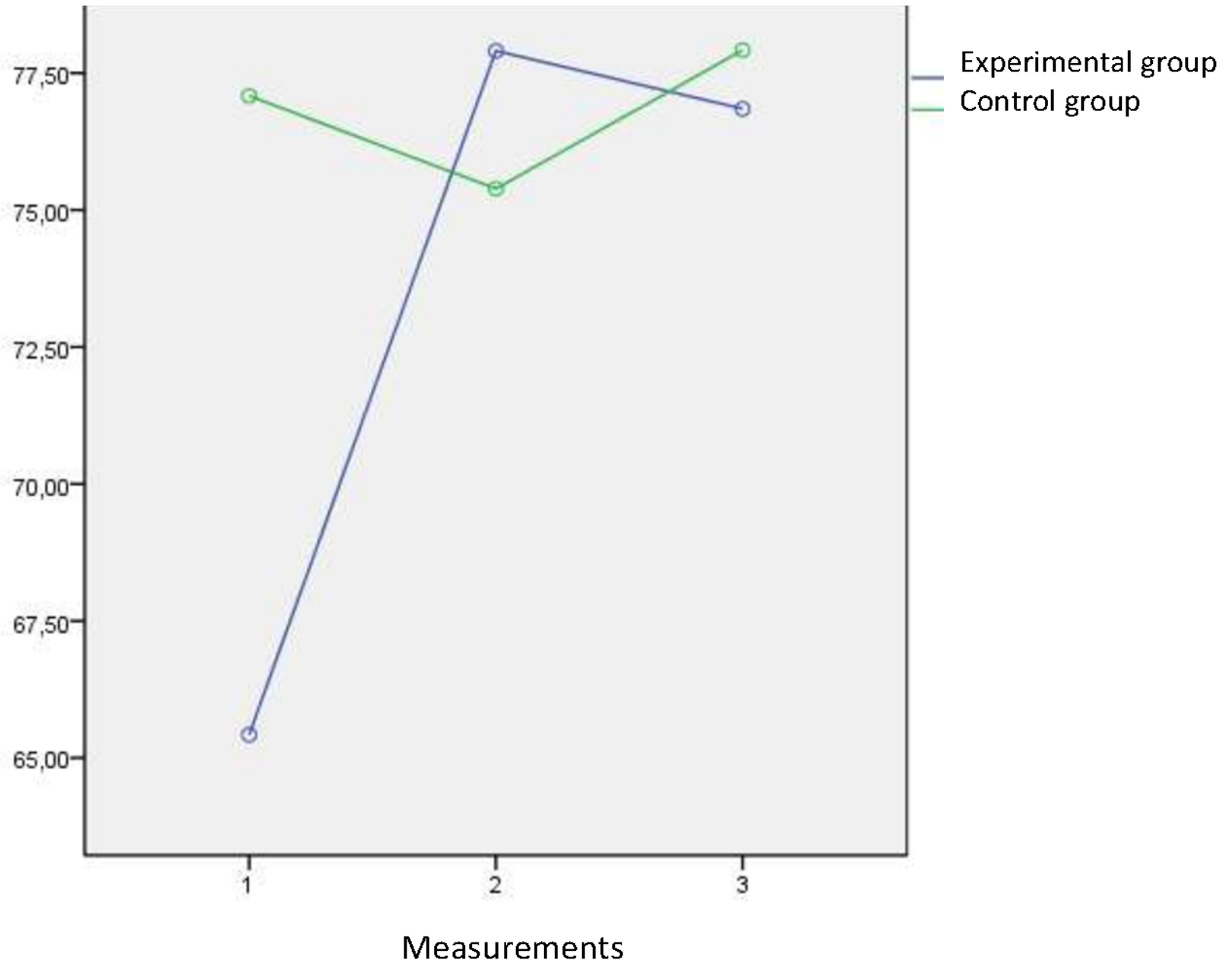
Visual analogue scale (VAS)



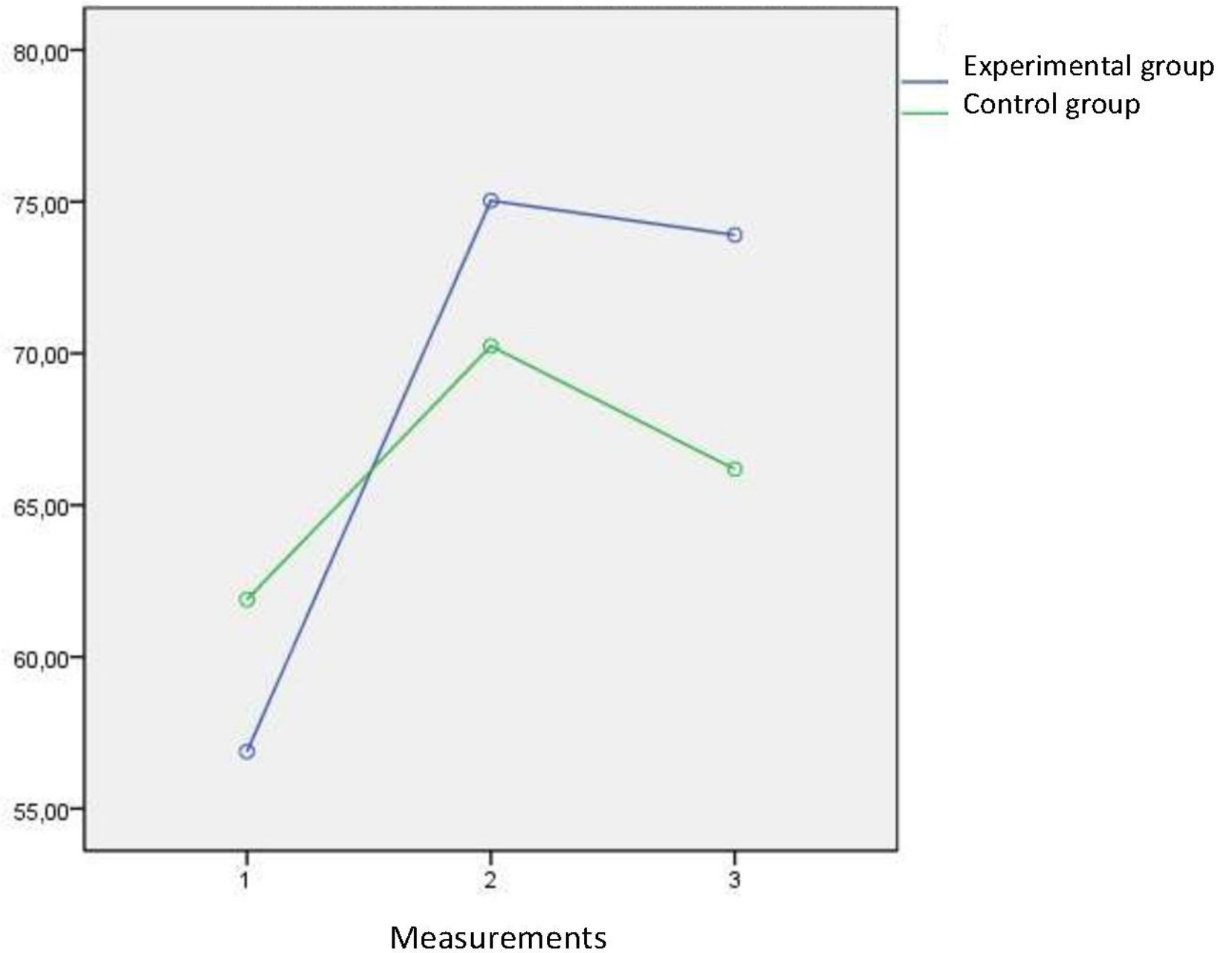
Quality of Life (SF-36total)



Physical component summary (PCS)



Mental Component Summary (MCS)



Exercise protocol goals !

- Decrease neck and upper back pain area
- Improve muscle elasticity
- Improve muscle strength
- Achieve normal range of motion
- Improve functional ability in daily life

Types of exercise

- Relaxation
- Proper position's (sitting and standing) adaptation exercises
- Stretching exercises
- Strength exercises
- Functional exercises

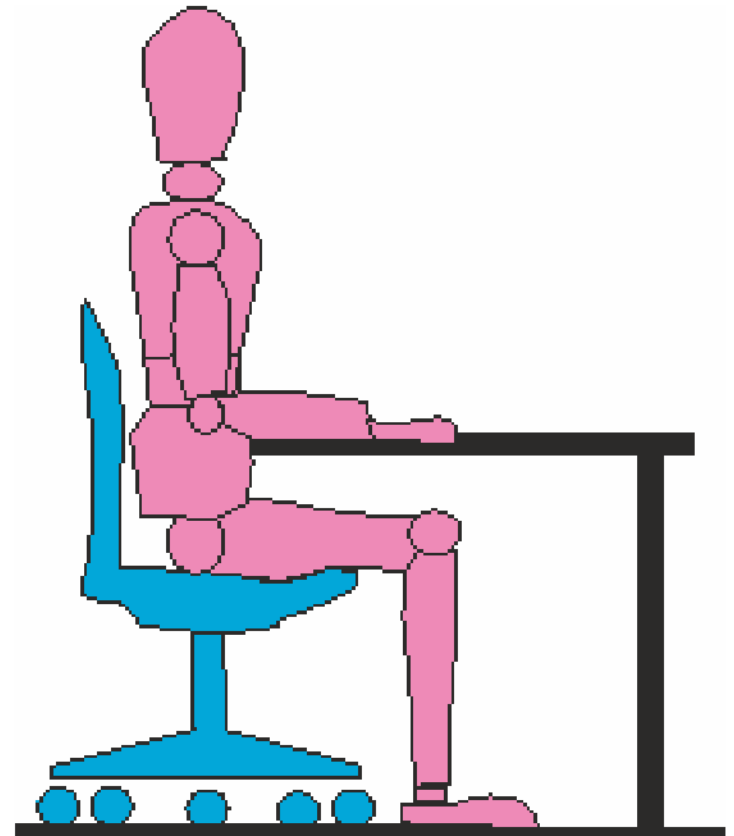
Sequence of exercises

- First, relaxation techniques.
- Next, perform positioning exercises.
- Then, stretching exercises.
- Simple strengthening exercises.
- After combination of stretching & strengthening exercises.
- Finally functional exercises



Next...Positioning exercises (Segmental muscles).

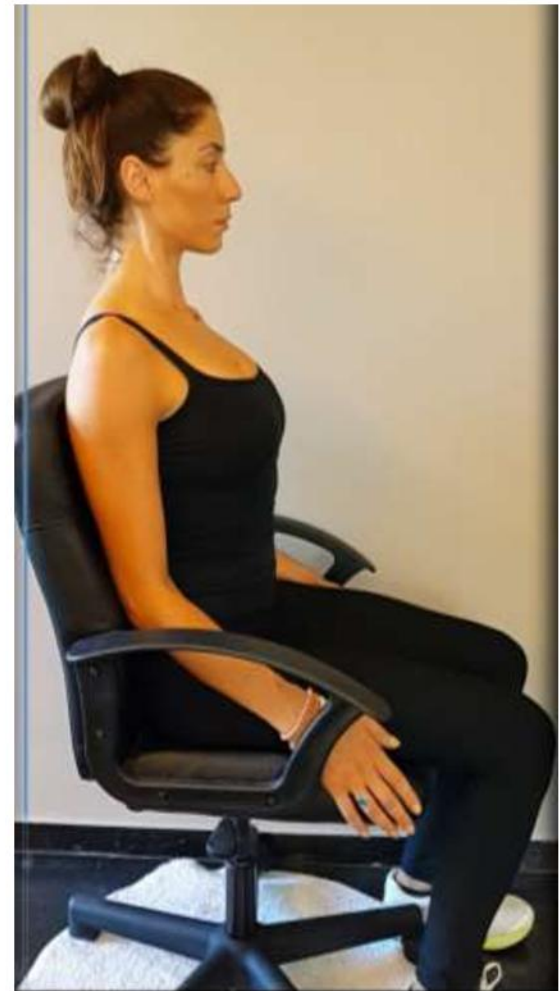
- Activate the segmental muscles so someone can tolerate the proper sitting or standing position for a period of time.



Perform positioning exercises (Segmental muscles)

Sitting position

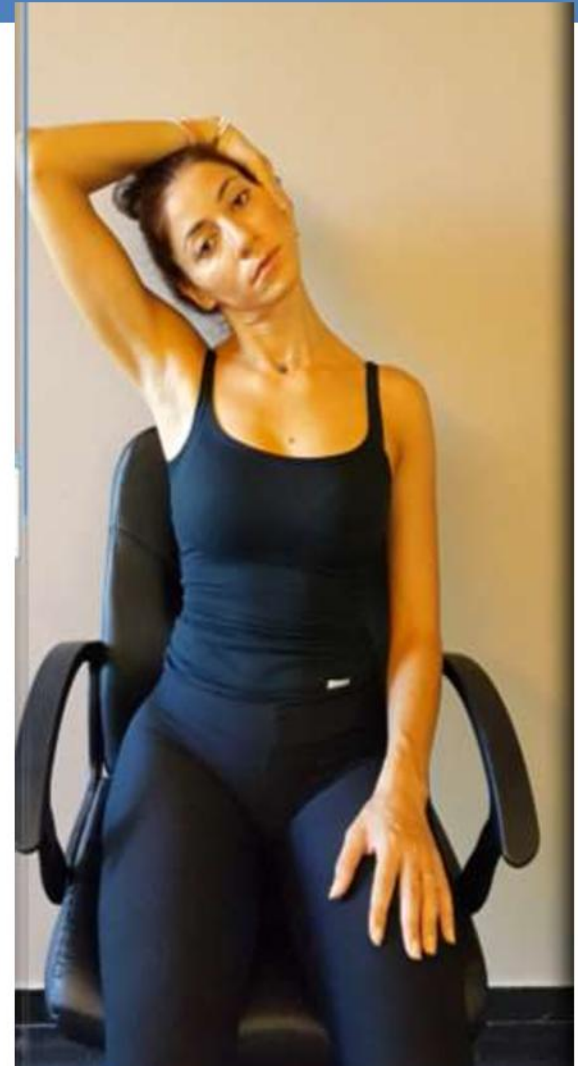
- ❑ Roll the pelvis forward to create a normal lumbar lordosis
- ❑ Lift the sternum, so the shoulders fall back into a neutral position.
- ❑ Tuck the chin as if making a double chin and lift the head while maintain the chin tuck.
- ❑ Hold for 10 sec and relax. Repeat.



Then, stretching exercises.

Lateral neck flexors muscles' stretching

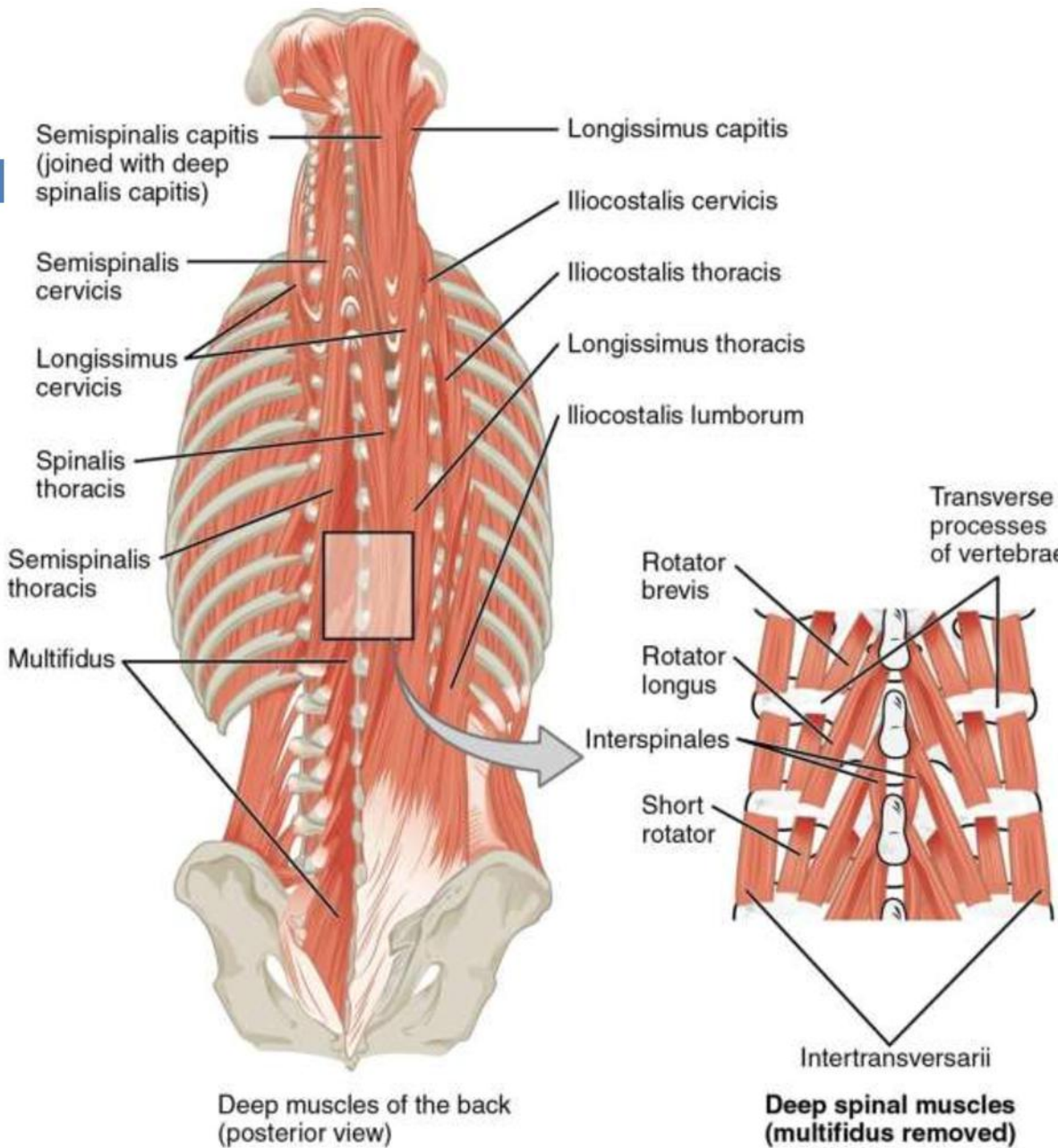
- ❑ Sit properly.
- ❑ Hold your upper back on the chair (your scapulas touch the chair).
- ❑ Place your arm over your head and touch with your hand the other side ear.
- ❑ As you hold this position, bend laterally your head while you help with your same side arm pushing your hand to increase the stretch.
- ❑ Feel a stretch on the other side of the neck. Hold it for 12 s.
- ❑ Return to the initial position, and repeat to the other side.



Segmental Muscles

Interspinalis

Action: extension of the vertebrae segments



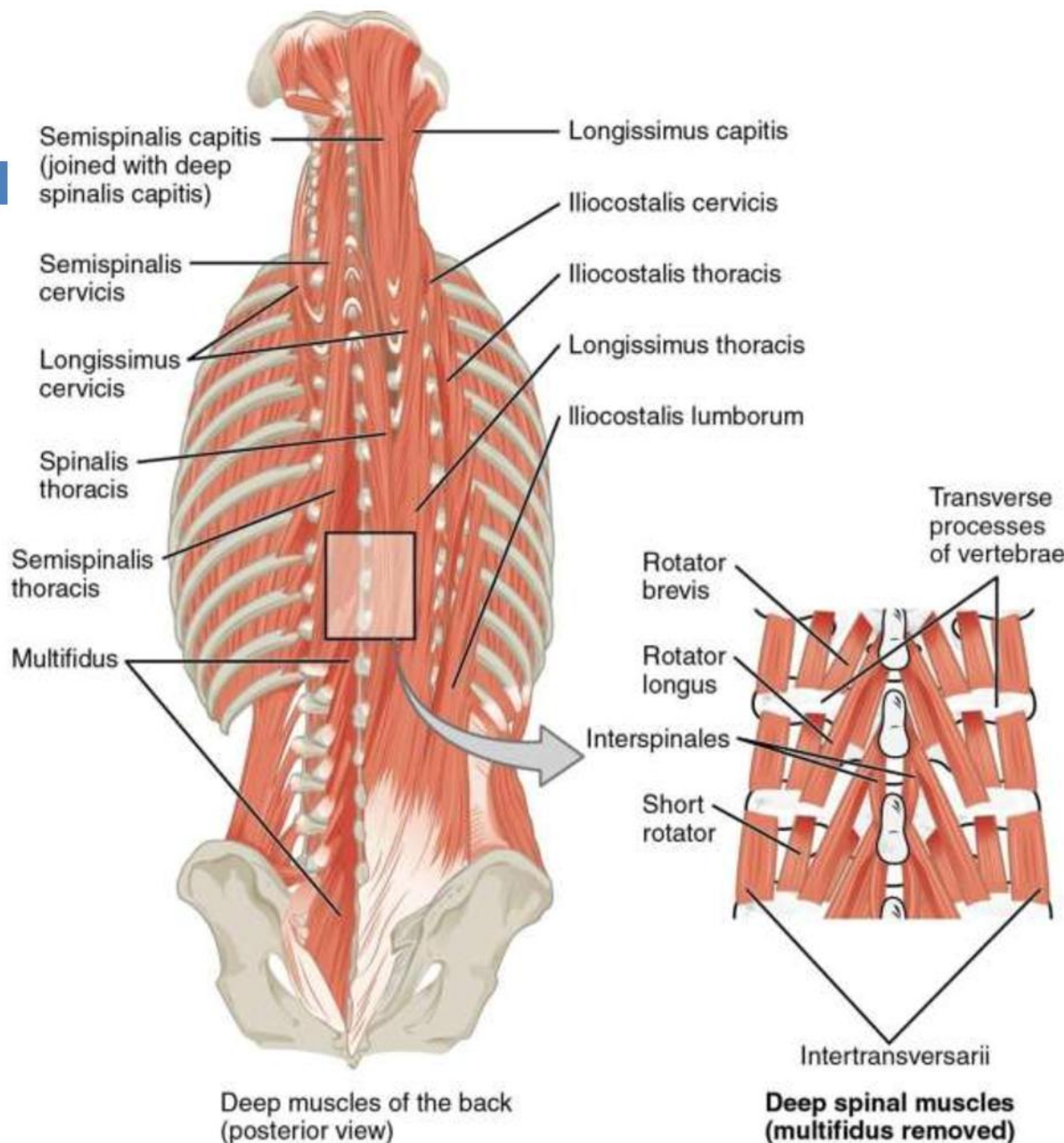
Segmental Muscles

Intertransversi

Action: laterally flexes

each respective pair of vertebrae

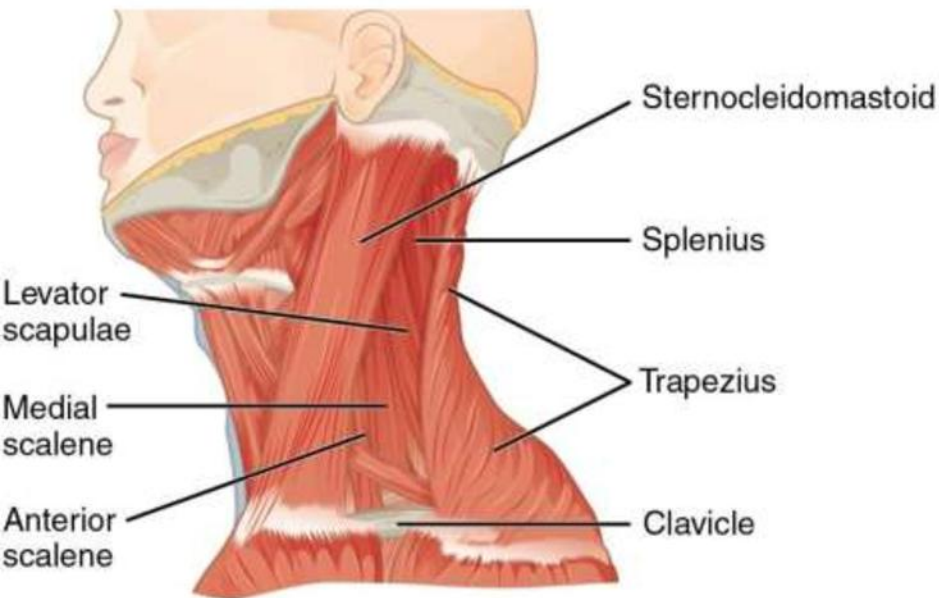
(also eccentric muscle contraction provides stability)



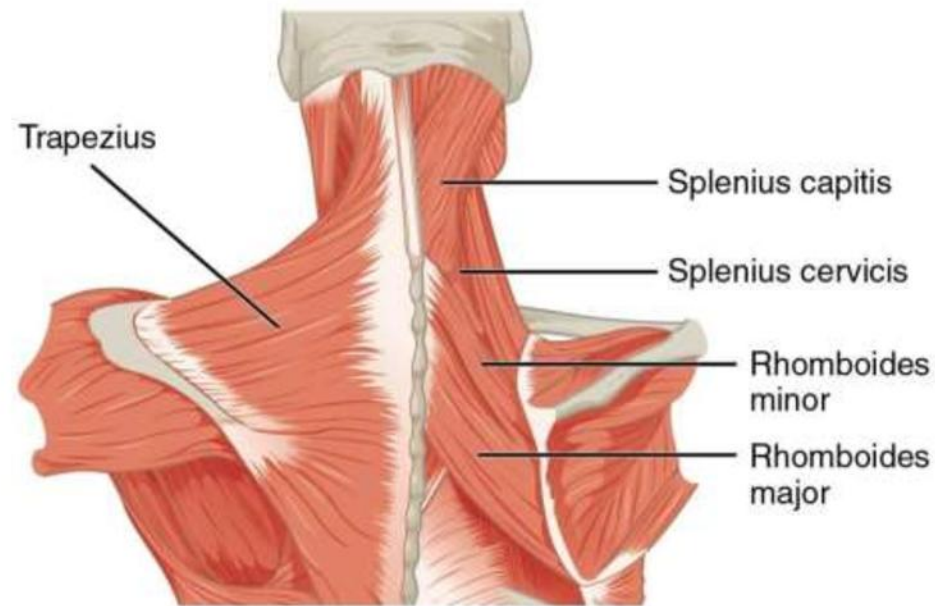
Splenius Muscles: Splenius capitis

Action: bilateral contraction: extend head & neck

unilateral contraction: rotate and laterally bend head & neck to the contracted (same) side



Muscles of the neck (left lateral view)

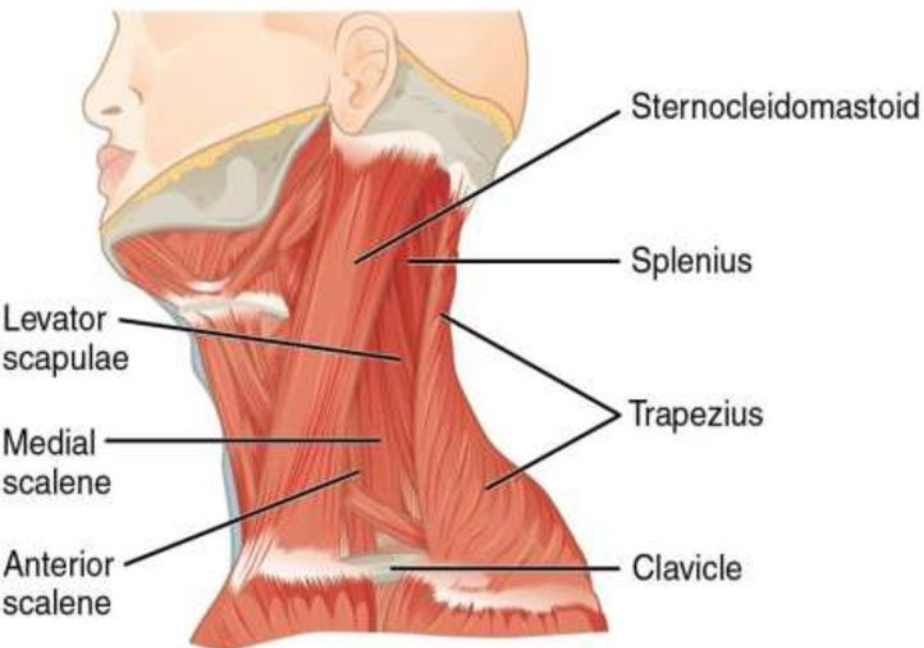


Superficial (left side) and deep (right side) muscles of the neck and upper back (posterior view)

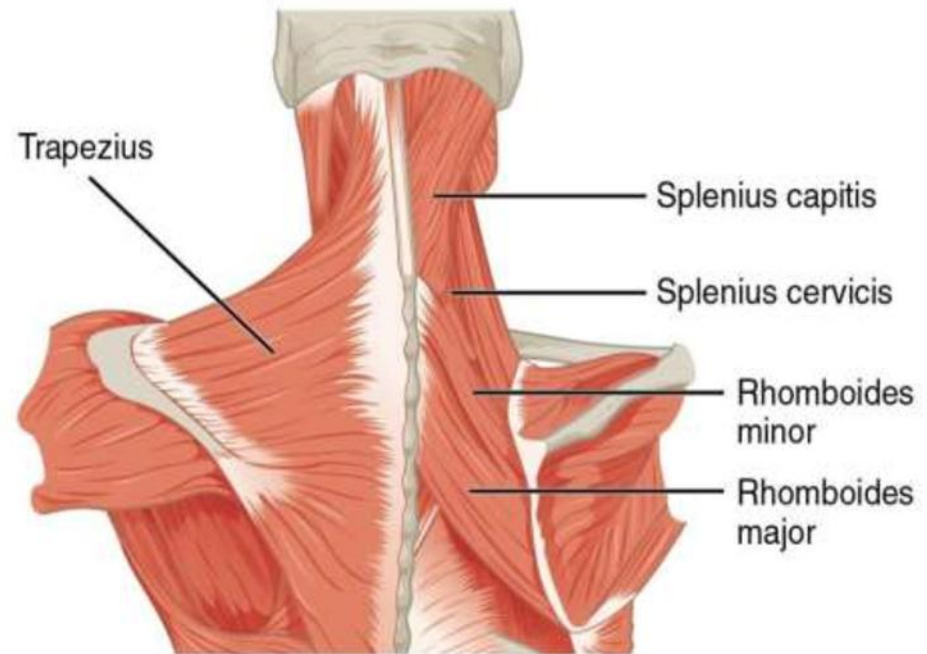
Splenius Muscles: Splenius cervicis

Action: bilateral contraction: extend head & neck

unilateral contraction: rotate and laterally bend head & neck to the contracted (same) side



Muscles of the neck (left lateral view)



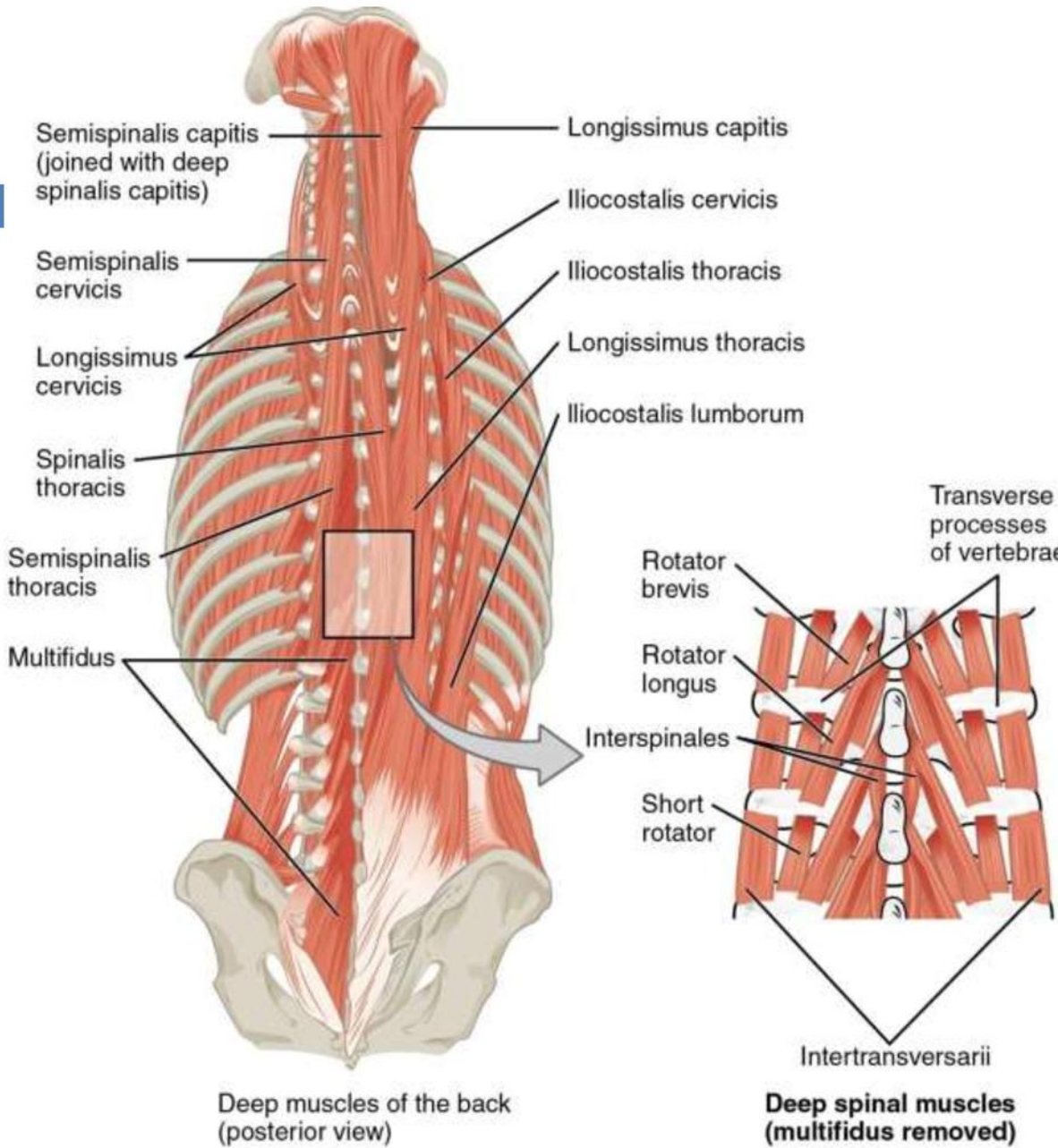
Superficial (left side) and deep (right side) muscles of the neck and upper back (posterior view)

Erector Spinae Muscles

Iliocostalis lumborum

Action: (same for all erector spinae) bilateral:
extension of vertebral column
maintenance of erect posture
(pneumonic = / Like Standing)
stabilization of vertebral column
during flexion, acting in contrast
to abdominal muscles and the
action of gravity
unilateral:
lateral bend to same side
rotation to same side
opposite muscles contract
eccentrically for stabilization

Iliocostalis thoracis Iliocostalis cervicis



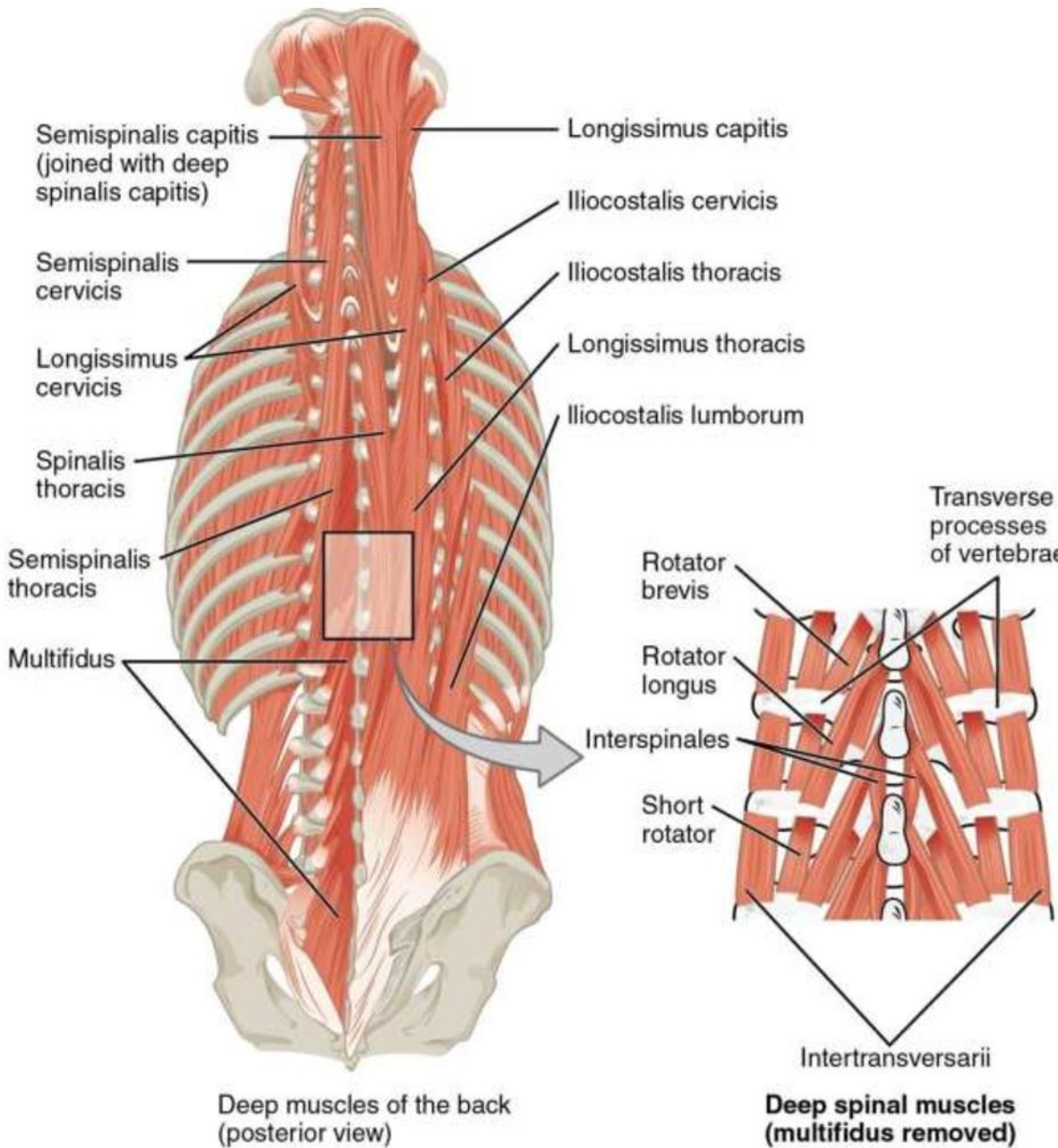
Erector Spinae Muscles

Longissimus thoracis

Action: (same for all erector spinae) bilateral:
 extension of vertebral column
 maintenance of erect posture
 (pneumonic = / Like Standing)
 stabilization of vertebral column during flexion, acting in contrast to abdominal muscles and the action of gravity
 unilateral:
 lateral bend to same side
 rotation to same side
 opposite muscles contract eccentrically for stabilization

Longissimus cervicis

Longissimus capitis



Erector Spinae Muscles

Spinalis thoracis

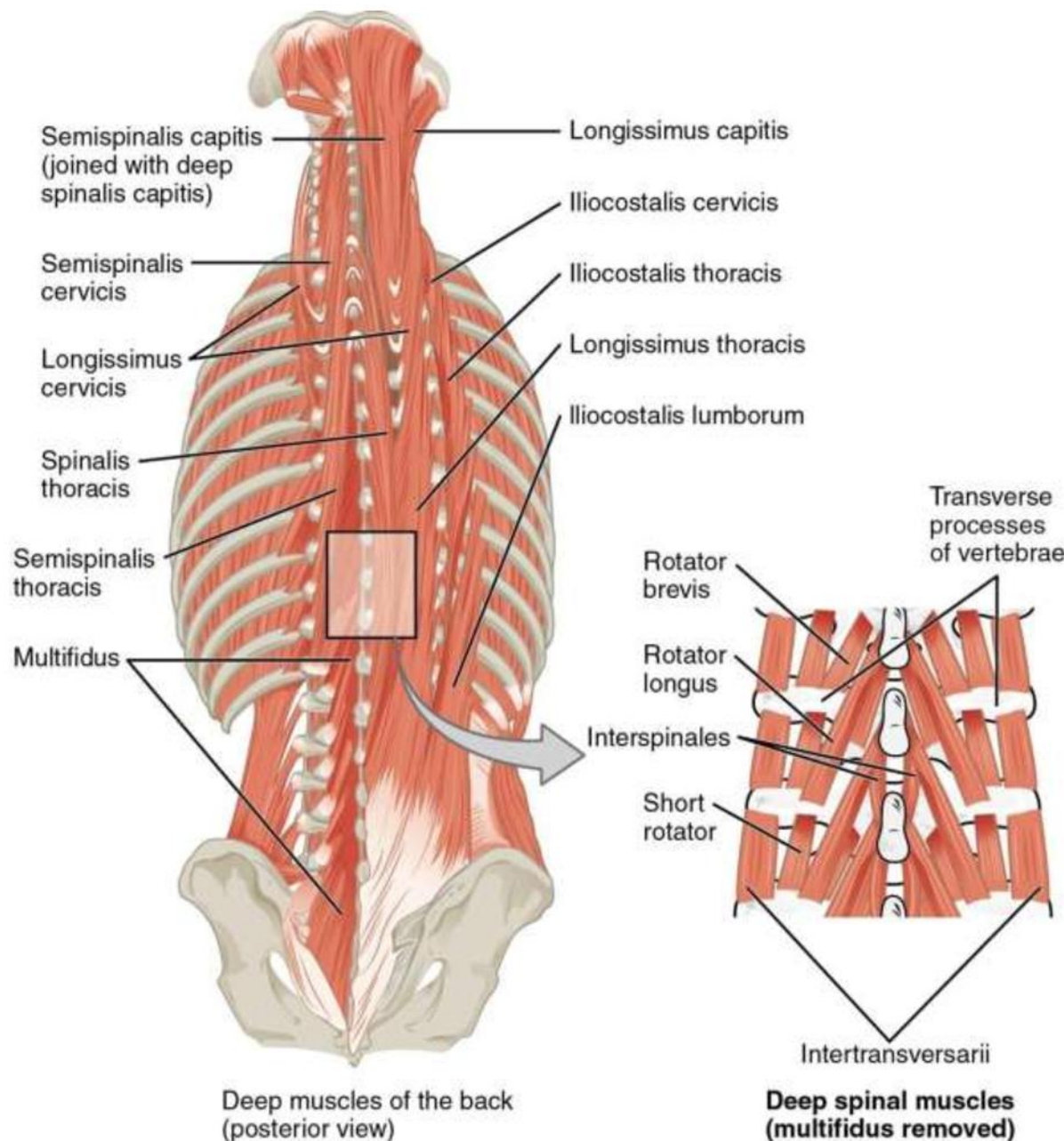
Action: (same for all erector spinae) bilateral:
extension of vertebral column
maintenance of erect posture
(pneumonic = / Like Standing)
stabilization of vertebral colu
during flexion, acting in contra
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action of gravity

unilateral:
lateral bend to same side
rotation to same side
opposite muscles contract
eccentrically for stabilization

Spinalis

cervicis

Spinalis capitis

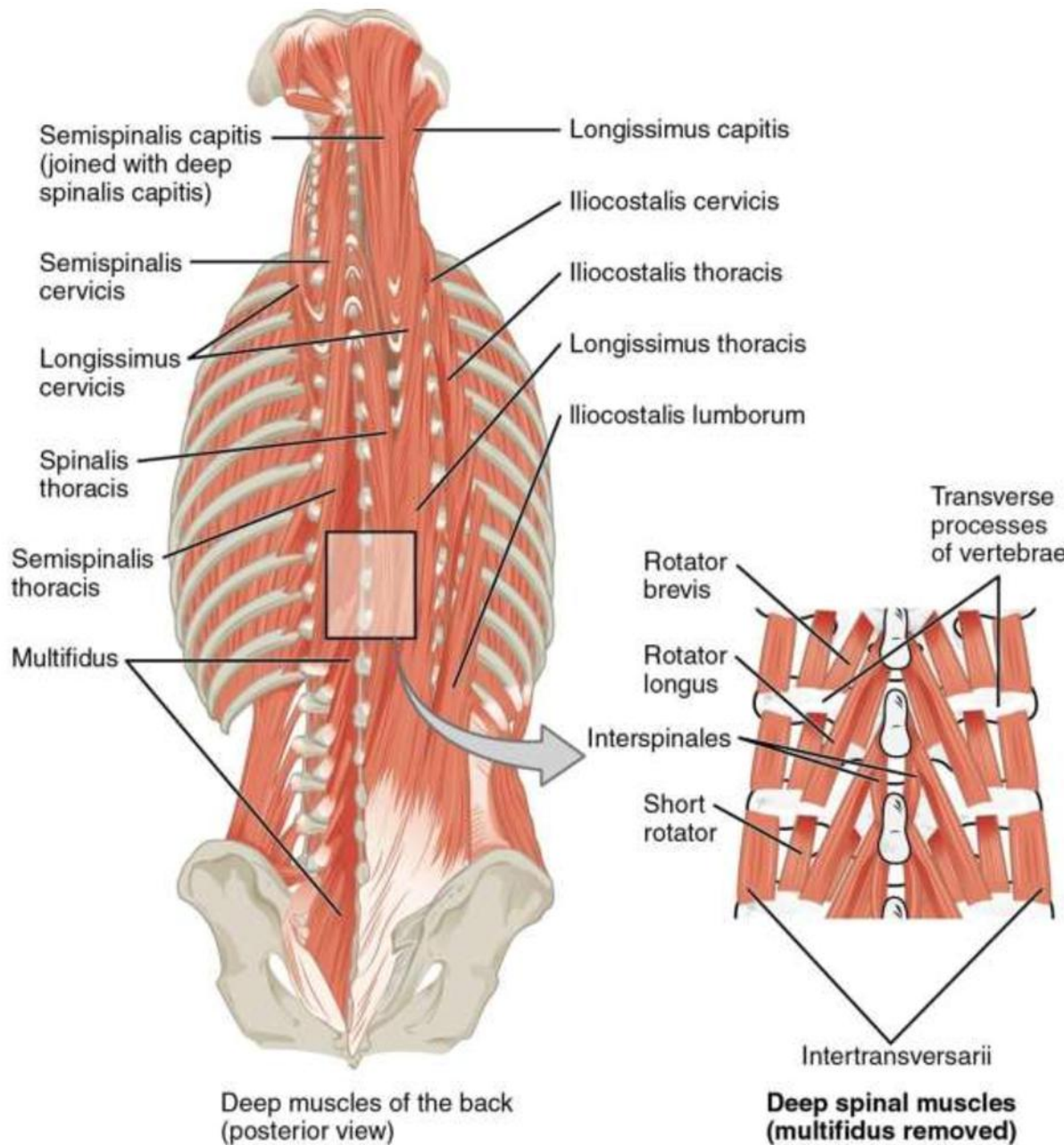


Transversospinal Muscles Semispinalis

thoracis Action:
bilaterally extends
vertebral
column, especially head
and neck
controls lateral flexion
to side opposite
contraction (eccentric
for stability)
maintains head posture

Semispinalis cervicis
same

Semispinalis capitis
same



Transversospinal Muscles

Multifidus

Action: bilaterally extends vertebral column controls lateral flexion to side opposite contraction (eccentric for stability) unilaterally rotate vertebral bodies (column) to opposite side

