

Student's full name: \_\_\_\_\_

## MODULE BIOMECHANICS OF SPINE

### Didactic Unit C: HOW DO I ASSESS THE SPINE?

#### C.1. What methods may I apply to assess the function of the spine appropriately?



#### CLASS ACTIVITY: MOVEMENT ASSESSMENT

You are going to measure the ACTIVE RANGE OF MOTION (ROM) of the following joints:

(Note: If any of the measurements performed is affected by a pathology in the subject measured, it should be PROPERLY INDICATED next to the value obtained.)

#### CERVICAL SPINE: FLEXION & EXTENSION

**CLASSIC GONIOMETER:** The stationary arm points perpendicular to the floor, with its fulcrum at the patient's earlobe. The mobile arm remains parallel to the floor, following a line from the earlobe to the base of the nose during the motion.

**INCLINOMETERS:** One of the inclinometers is placed over vertebra (spinous process) T1 in line with the saggital plane, holding the second inclinometer over the occiput. We subtract the value from inclinometer T1 from the one at the occiput for maximum flexion and extension.



**FLEXION ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

**EXTENSION ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

### CERVICAL SPINE: Right & left LATERAL FLEXION (LF)

**CLASSIC GONIOMETER:** The stationary arm points perpendicular to the floor, in line with the spine, with its fulcrum at C7. The mobile arm starts perpendicular to the floor and remains in line with the cranium's posterior medial line throughout the motion.

**INCLINOMETERS:** One of the inclinometers is placed over vertebra (spinous process) T1, holding the second inclinometer over the occiput. Now both are lined up with the frontal or coronal plane. We subtract the value from inclinometer T1 from the one at the occiput for the maximum lateral flexions.



**RIGHT LF ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

**LEFT LF ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

### CERVICAL SPINE: Right & left ROTATION

**CLASSIC GONIOMETER:** The stationary arm is lined up with an imaginary line connecting the subject's two acromions, with the goniometer's fulcrum placed at the top of their head. The movable arm stays in line with their nose throughout the motion.

**INCLINOMETER:** The subject lays down in decubitus supine on an examination table with their shoulders bare in order to check they do not rotate. The inclinometer is placed on their forehead in the coronal plane throughout the motion.



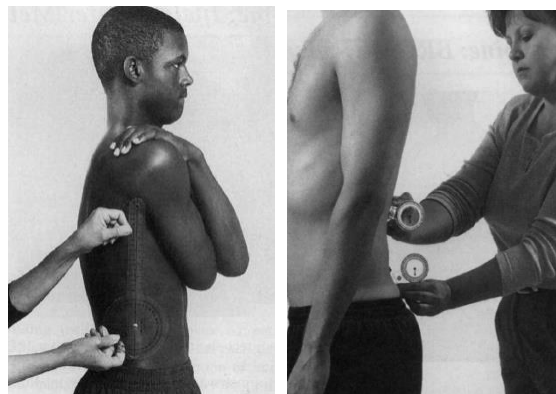
**RIGHT ROTATION ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

**LEFT ROTATION ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

### LUMBAR SPINE: FLEXION & EXTENSION

**CLASSIC GONIOMETER:** The stationary arm points perpendicular to the floor, with the fulcrum at the patient's last rib. The mobile arm follows the patient's torso along the midaxiallary line throughout the motion.

**INCLINOMETERS:** One of the inclinometers must be placed over vertebra (spinous process) T12 in line with the saggital plane, with the second one over the sacrum (approximately at its medial point). We subtract the value from the sacrum's inclinometer from the one at T12 for maximum flexion and extension.



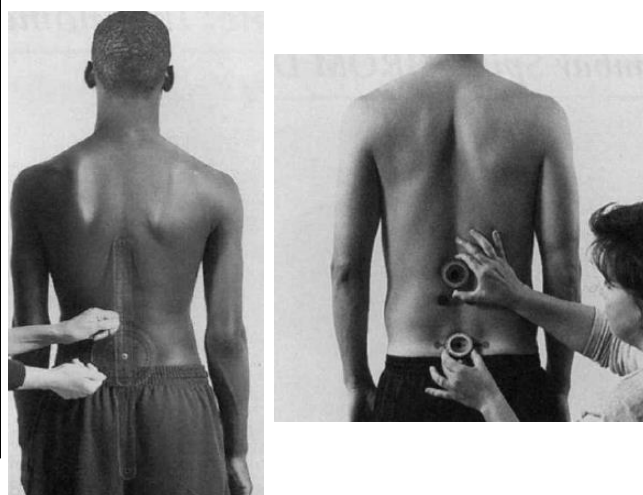
**FLEXION ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

**EXTENSION ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

### LUMBAR SPINE: Right & left LATERAL FLEXION (LF)

**CLASSIC GONIOMETER:** The stationary arm remains perpendicular to the floor in line with the intergluteal cleft. The mobile arm stays in line with the dorsolumbar spine, following its axis throughout the motion.

**INCLINOMETERS:** The inclinometers are placed at the same place as for flexion and extension (T12 and the sacrum), but in this case they are in line with the coronal or frontal plane. We subtract the value from the sacrum's inclinometer from the one at T12 for the maximum lateral flexions.



**RIGHT LF ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

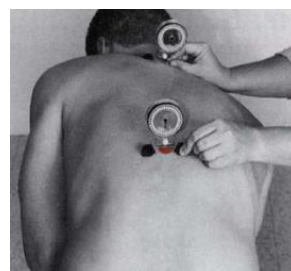
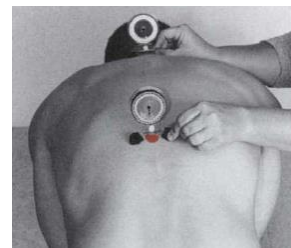
**LEFT LF ROM (goniometer/inclinometer):** \_\_\_\_\_ / \_\_\_\_\_

## DORSAL SPINE: Right & left ROTATION

**CLASSIC GONIOMETER:** not valid

**INCLINOMETERS:** The inclinometers are placed over vertebrae (spinous processes) T1 and T12, with their bases perpendicular to the axis of the spine.

The subject performs the motion starting with their trunk in flexion so that their trunk is approximately parallel to the floor. From there, they are asked to rotate their trunk (emphasising the dorsal zone) with their arms crossed over their chest, attempting to point their left or right elbow towards the ceiling.



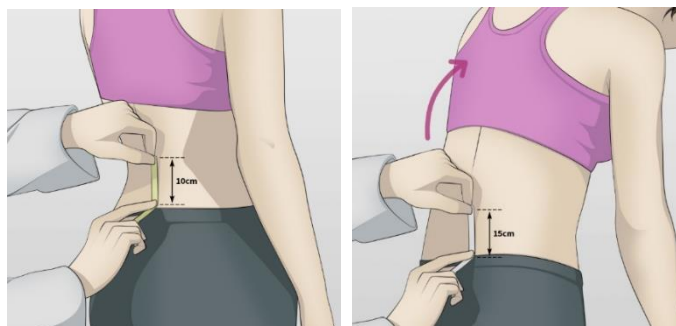
**FLEXION ROM (inclinometer):** \_\_\_\_\_

**EXTENSION ROM (inclinometer):** \_\_\_\_\_

## SCHÖBER'S TEST

In this case, the two points marked correspond to vertebra (spinous process) S1 and a point 10 cm below.

We ask the subject to flex their trunk as far as possible and we measure the distance between the points marked in that position.



**Schöber result (cm):** \_\_\_\_\_ **Normal or Pathological?** \_\_\_\_\_

## OTT'S TEST

The patient stands, and the distance is measured between a point marking vertebra (spinous process) C7 and a point 30 cm below. The subject is asked to perform an anterior flexion, attempting to curve the dorsal region as much as possible, and vice-versa.

**Ott result (cm):** \_\_\_\_\_ **Normal or Pathological?** \_\_\_\_\_

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