

CROSS-SECTIONAL STUDY ON POSTURE AND THORACOLUMBAR SPINE KINEMATICS BETWEEN SUBJECTS WITH AND WITHOUT CHRONIC LOW BACK PAIN.

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INTRODUCTION

Chronic low back pain (CLBP) is the most common musculoskeletal disorder, and one of the main public health problems worldwide; remaining as the main cause of years lived with disability. Several studies have shown associations between low back pain and sagittal alignment and kinematic in thoracolumbar spine, but the thoracic spine has been less studied and some of the measurement used are not easily applicable in the clinical setting.

AIM

To identify differences in posture and range of motion of the thoracolumbar region between adults with vs without (CNP).

METHODS

- It is an observational, cross-sectional study with a comparative design between two subgroups: with and without CLBP.
- The thoracic and lumbar curvature in sagittal plane was measured through a flexible rule (angle and index for kyphotic and lumbar lordosis); and the thoracolumbar mobility in the three planes with centimetric measurements: fingertip-to-floor distance (FFD), seated rotation test in thoracic spine (SRT), and lateral bending (LB) (figure 1).
- Anthropometric and sociodemographic variables, level of physical activity, central sensitization, prevalence of musculoskeletal pain and intensity of pain were also analysed.

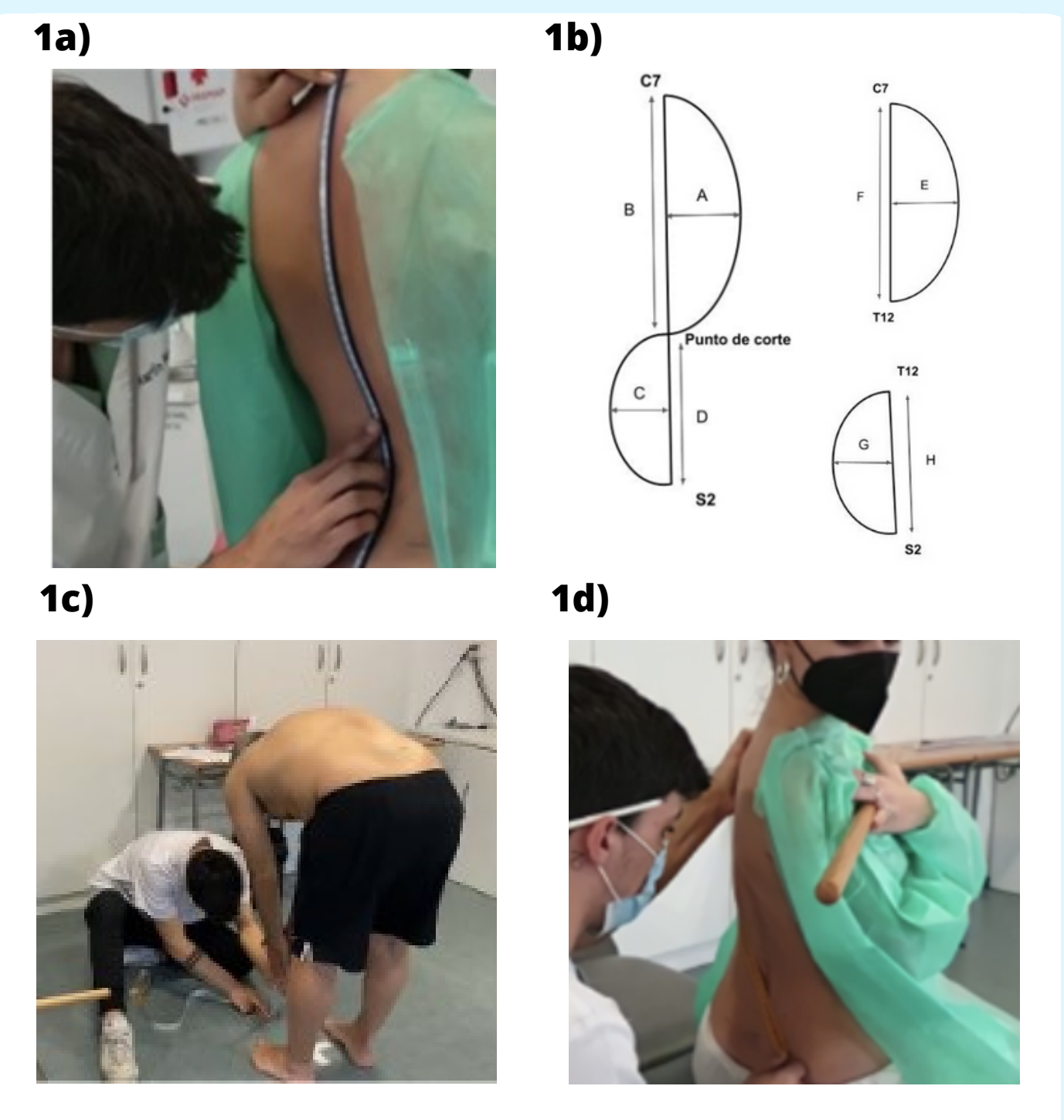


Figure 1. 1a) Use of flexicurve; 1b) Kyphotic and lordotic indexes and angles calculation; 1c) Fingertip-to-Floor Distance Test; 1d) Seated Thoracic Rotation Test.

RESULTS

OUTCOMES	Cases: subjects with CLBP (n=24)	Controls: subjects without CLBP (n=14)	p
	Mean ± SD	Mean ± SD	
Kyphotic angle	9.5 ± 2.5	9.9 ± 1.9	0.47
Kyphotic index	8.9 ± 2.8	9.4 ± 1.9	0.61
Lordotic angle	10.9 ± 2.5	11.7 ± 3.4	0.63
Lordotic index	12.2 ± 3.0	13.4 ± 4.1	0.63
Fingertip-to-Floor Test (FFD)	10.9 ± 12.0	2.1 ± 11.6	0.03
Seated Thoracic Rotation Test (SRT)			
To right	4.9 ± 1.1	6.8 ± 1.9	0.003
To left	4.9 ± 1.3	6.0 ± 2.2	0.03
Lateral Bending (LB)			
To right	47.4 ± 4.9	45.0 ± 4.3	0.09
To left	47.7 ± 5.3	44.6 ± 4.5	0.08

Table 1. Results of the thoracolumbar global mobility tests and static postural indexes and angles.

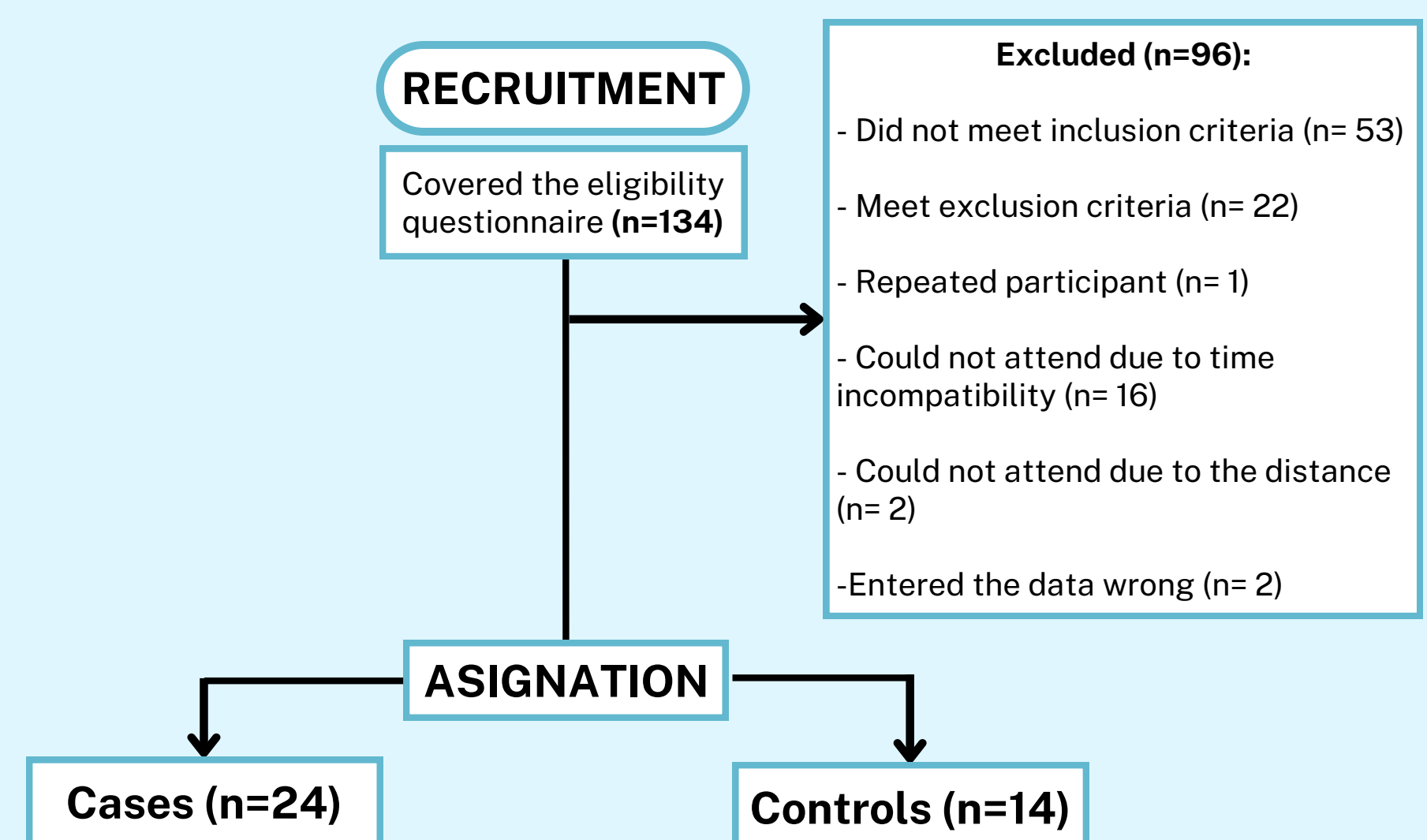


Figure 2. Sample selection process flowchart.

- 38 subjects were included after the selection process (figure 2)
- No differences were observed for the indexes and angles of kyphotic or lordotic curves between the 2 subgroups (table 1).
- Subjects with CLBP present less mobility of the thoracolumbar spine in all planes (table 1). Significant difference for FFD and for SRT (to the right and to the left) tests; and close to statistical significance for the LB.

CONCLUSIONS

Range of motion in thoracolumbar spine is lower in subjects with CLBP; this difference is statistically significant for the movements in sagittal and transverse plane; and close to significance for those in frontal plane. We have not found significant differences in the amplitude of the physiological curves of the thoracic and lumbar region.

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