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Lumbar lordosis in low back pain conditions: Evaluation of some radiographic angular measures

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Background: Low back pain (LBP) is now the leading cause of disability globally. Patients often have lumbar spine motion dysfunction (decrease or increase in motion), and this may affect the degree of lumbar lordosis (LL). The relationship between LL and LBP has immense clinical significance, because it serves as the basis of therapeutic exercises for treating and preventing LBP. An angular measure of LL that consistently detects even a small lordotic change (LC) would be considered reliable.

Aims and Objectives: Evaluation of the consistency of each of four radiographic angles in detecting a LC in a potential LBP disorder.

Methodology: Four radiographic angles [Lumbosacral angle (LSA), lumbosacral joint angle (LSJA), Cobb angle, and Tangential radiologic assessment of lumbar lordosis (TRALL) angle] were retrospectively used to measure LL in spondylotic (test case) and normal (control) lumbosacral spine radiographs of both genders; their consistency in detecting intra-gender LC between cases (tests versus controls) was evaluated. In each gender, the cases (tests versus controls) were similar in number as follows: LSA (125), LSJA (115), Cobb angle (118), and TRALL angle (101). All cases were ≥ 17 years of age. Data was analyzed with IBM SPSS Statistics 23.0 (NY, USA); $P < .05$ was considered statistically significant.

Result: LSJA detected slight intra-gender LC in both genders, LSA in the males only, Cobb and TRALL angles in none.

Conclusion: LSJA is a reliable measure of lumbar LC in therapeutic exercises (Flexion and extension movements or positions) for treating and preventing various forms of LBP.

Keywords: Low back pain, Lumbar lordosis, Evaluation, Radiographic angle, Consistency.

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