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| Lumbar spine |
| Reliability |
| Test | Procedure and positivity criteria | Reliability statistics | reference |
| History items | Patient report of: |
| Back pain | K = -0.19 – 0.16 |  |
| Buttock pain | K = 0.33 – 0.44 |  |
| Thigh pain | K = 0.39 – 0.78 |  |
| Leg pain | K = 0.53 – 0.96 |  |
| Foot pain | K = 0.12 – 0.73 |  |
| Pain ever below knee | Agreement 100% |  |
| Pain ever into foot | Agreement 92% |  |
| Numbness below knee | Agreement 95% |  |
| Increased pain with: |
| Sitting | K = 0.49-0.99 |  |
| Standing | K = 1.00 |  |
| Walking | K = 0.56 |  |
| Lying down | K = 0.41 |  |
| Bending | K = 0.51 – 0.98 |  |  |
| Cough / sneeze | K = 0.64-0.75 |  |
| Pushing/lifting/carrying | K = 0.77-0.89 |  |  |
| Range of motion | Single inclinometer measurement of: |
|  | Flexion | r=0.60 |  |
|  | Extension | R=0.61 |  |
| Palpation | Detection of nominated segmental levels | K = 0.69 |  |
|  | 11 point scale of PA “stiffness” from “markedly reduced” to “markedly increased”  | ICC=0.55-0.77 |  |
|  | 9 point scale “severe excess motion” to “no motion” | ICC=0.25 |  |
|  | 3 point scale: hypermobile, normal, hypomobile | K = -0.2-0.26 |  |
|  | Detection of ‘misaligned vertebra’ | K = -0.04 – 0.03 |  |
|  | Detection of a ‘segmental lesion’ T11-L5/S1 | 0.-16 – 0.57 |  |
|  | Patient seated. Most hypomobile segment recorded | R=-0.007-0.65 |  |
|  | Determination of segmental fixations | K = 0.09-0.39 |  |
|  | Side lying: normal/decreased/increased | K = 0.54 |  |
|  | Hypermobility at any level | K=0.48 |  |
|  | Hypomobility at any level | K=0.38 |  |
| Pain provocation | Spring test | K = 0.56 – 0.78 |  |
|  | Intersegmental tenderness | K = 0.55 |  |
|  | Pain during mobility testing | K = 0.57 |  |
|  | During active movement testing:  |
|  | Lateral flexion | K = 0.60 |  |
|  | Rotation | K = 0.17 |  |
|  | Lateral flexion / rotation | K = 0.29 |  |
|  | Flexion/lateral rotation/rotation | K = 0.39 |  |
|  | Extension/lateral flexion/rotation | K = 0.29 |  |
| McKenzie classification of three syndromes: derangement/dysfunction/posture | Minimal training | K = 0.26 |  |
|  | Trained | K = 0.70-0.79 |  |
| Detection of lateral shift | Minimal training in McKenzie method | K = 0.26 |  |
|  | Trained | K = 0.20 |  |
| Detection of centralization or directional reference | Trained in McKenzie method | K = 0.70-.90 |  |
|  | Untrained in McKenzie method but given instructions | K = 0.82 for PTsK = 0.76 for student PTs |  |
| Lumbar instability measures | Painful arc in flexion | K = 0.69 |  |
|  | Painful arc return from flexion | K = 0.61 |  |
|  | Instability catch | K = 0.25 |  |
|  | Gower sign: patient pushes up from flexion using hands on thighs | K = 0.0 |  |
|  | Reversal of lumbopelvic rhythm | K = 0.16 |  |
|  | Aberrant movement pattern: any one of the previous 5 | K = 0.60 |  |
|  | Posterior shear test in standing: pain provocation at any level | K = 0.35 |  |
|  | Prone instability test | K = 0.87 |  |
| Passive SLR test (Lasegue) | For typical dermatomal pain | K = 0.68 |  |
|  | For any pain | K = 0.36 |  |
|  | Lower than 45 degrees | K = 0.43 |  |
|  | ROM recorded by student PTs | r = 0.83-0.86 |  |
|  | Low back or buttock pain | K = 0.32 |  |
| Active SLR test | 6 point scale “not difficult at all” to “unable to do” | ICC = 0.83 |  |
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| Lumbar Spine: Validity |
| Lumbar disc herniation causing radicular pain and radiculopthy |
| Test | Sensitivity | Specificity | LR+ | LR- | reference |
| SLR |  |  |  |  |  |
|  |  |  |  |  |  |
| Crossed SLR |  |  |  |  |  |
|  |  |  |  |  |  |
| MRI |  |  |  |  |  |
|  |  |  |  |  |  |
| CT |  |  |  |  |  |
|  |  |  |  |  |  |
| Key muscle weakness |  |  |  |  |  |
|  |  |  |  |  |  |
| Tendon Reflex |  |  |  |  |  |
|  |  |  |  |  |  |
| Sensation deficit |  |  |  |  |  |

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| Lumbar Spine: Validity |
| Positive discography / discogenic pain |
| Test | Sensitivity | Specificity | LR+ | LR- | reference |
| Centralization (complete) |  |  |  |  |  |
| Centralization ‘effect’ |  |  |  |  |  |
| Directional preference |  |  |  |  |  |
| Vibration to spinous process |  |  |  |  |  |
| ‘Modic’ changes |  |  |  |  |  |
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| Lumbar Spine: Validity |
| Positive response to Z-joint blocks |
| Test | Sensitivity | Specificity | LR+ | LR- | reference |
| Revel’s criteria I |  |  |  |  |  |
| Revel’s criteria II |  |  |  |  |  |
| Best walking |  |  |  |  |  |
| Best sitting |  |  |  |  |  |
| Age >50 |  |  |  |  |  |
| Ipsilateral ER + |  |  |  |  |  |
| Contralateral ER + |  |  |  |  |  |
| Either ER + | 94-100 | 22 | 1.2-1.3 | 0-0.28 |  |
| ER - |  |  |  |  |  |
| Absence of centralization  |  |  |  |  |  |
| CPR1 |  |  |  |  |  |
| CPR2 |  |  |  |  |  |
| CPR3 |  |  |  |  |  |
| CPR4 |  |  |  |  |  |
| CPR5 |  |  |  |  |  |

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| Lumbar Spine: Validity |
| Positive response to SIJ blocks  |
| Test | Sensitivity | Specificity | LR+ | LR- | reference |
| Distraction |  |  |  |  |  |
| Thigh thrust |  |  |  |  |  |
| Gaenslen’s |  |  |  |  |  |
| Compression |  |  |  |  |  |
| Sacral thrust |  |  |  |  |  |
| 1 or more |  |  |  |  |  |
| 2 or more |  |  |  |  |  |
| 3 or more |  |  |  |  |  |
| 4 or more |  |  |  |  |  |
| 5 or more |  |  |  |  |  |
| Centralization |  |  |  |  |  |
| 3 or more and non centralization |  |  |  |  |  |
| Gillet |  |  |  |  |  |
| Leg length |  |  |  |  |  |
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| Lumbar Spine: Validity |
| Stenosis |
| Test | Sensitivity | Specificity | LR+ | LR- | reference |
| Walking pain relieved by sitting | 80 | 16 | 0.95 | 1.27 |  |
| Better supported on shopping cart | 63 | 67 | 1.9 | 0.55 |  |
| Age>65 | 77 | 69 | 2.5 | 0.33 |  |
| Pain below knees | 56 | 63 | 1.5 | 0.70 |  |
| Pain below buttocks | 88 | 34 | 1.3 | 0.35 |  |
| No pain seated | 46 | 93 | 6.6 | 0.58 |  |
| Severe lower extremity pain | 65 | 67 | 2.0 | 0.52 |  |
| Symptoms improved while seated | 52 | 83 | 3.1 | 0.58 |  |
| Two stage treadmill test (level and 15º): |  |
| Increased time to onset at 15º | 69 | 83 | 1.1 | 0.39 |  |
| Longer total time walking at 15º | 50 | 92 | 6.5 | 0.54 |  |
| Prolonged recovery after level walking | 82 | 68 | 2.6 | 0.26 |  |
| Abnormal Rhomberg | 39 | 91 | 4.3 | 0.67 |  |
| Vibration deficit | 53 | 81 | 2.8 | 0.58 |  |
| Pin prick deficit | 47 | 81 | 2.5 | 0.65 |  |
| Weakness of knee flexors or extensors or EHL | 47 | 78 | 2.1 | 0.68 |  |
| Thigh pain with 30 seconds of extension | 51 | 69 | 1.6 | 0.71 |  |
| Absent TA reflex | 46 | 78 | 2.1 | 0.69 |  |

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| Lumbar Spine: Validity |
| Instability – rotational / translational instability on mobility x-rays |
| Test | Sensitivity | Specificity | LR+ | LR- | reference |
| Age < 37 | 57 | 81 | 3.0 | 0.53 |  |
| Lumbar flexion >53º | 68 | 86 | 4.8 | 0.38 |  |
| Total extension >26º | 50 | 76 | 2.1 | 0.66 |  |
| Lack of hypomobility | 43 | 95 | 8.6 | 0.60 |  |
| Any hypermobility | 46 | 81 | 2.4 | 0.66 |  |
| Combination of lack of hypomobility and flexion>53 | 29 | 98 | 12.8 | 0.72 |  |