

Can parameters of the helical axis be measured reliably during active cervical movements?

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| Parameter | Movement | Mean (SD) | Intra-session reliability | | | Inter-session reliability | | |
|------------------------|-------------------|-------------|---------------------------|------|-------|---------------------------|------|-------|
| | | | ICC (95% CI) | SEM | MDC | ICC (95% CI) | SEM | MDC |
| ROM (°) | Rotation | 149 (13) | 0.83 (0.63-0.92) | 5.44 | 15.08 | 0.88 (0.73-0.94) | 4.68 | 12.96 |
| | Flexion/extension | 120 (18) | 0.93 (0.85-0.97) | 4.80 | 13.30 | 0.85 (0.67-0.93) | 7.03 | 19.47 |
| | Lateral bending | 92 (12) | 0.96 (0.91-0.98) | 2.50 | 6.94 | 0.85 (0.68-0.93) | 4.75 | 13.17 |
| CHA (cm ²) | Rotation | 11.2 (2.90) | 0.80 (0.55-0.91) | 1.23 | 3.35 | 0.81 (0.58-0.91) | 1.16 | 3.29 |
| | Flexion/extension | 29.5 (13.7) | 0.86 (0.68-0.93) | 4.45 | 12.4 | 0.53 (-0.06-0.79) | 8.06 | 22.4 |
| | Lateral bending | 12.3 (4.90) | 0.71 (0.36-0.87) | 2.39 | 6.58 | 0.73 (0.43-0.88) | 2.26 | 6.32 |
| MA (°) | Rotation | 3.95 (1.18) | 0.95 (0.89-0.98) | 0.24 | 0.66 | 0.85 (0.67-0.93) | 0.42 | 1.16 |
| | Flexion/extension | 3.15 (0.47) | 0.66 (0.25-0.84) | 0.25 | 0.70 | 0.38 (-0.20-0.70) | 0.34 | 0.95 |
| | Lateral bending | 6.40 (0.95) | 0.56 (0.01-0.80) | 0.65 | 1.80 | 0.61 (0.15-0.82) | 0.61 | 1.70 |

ICC, intra-class correlation; SD, standard deviation; SEM, standard error of the measurement; MDC, minimal detectable change.