



Reliability of a new measuring device („spinal mouse“) in recording the sagittal profile of the back

S. Keller, A. Mannion, D. Grob

Schulthess Clinic, Lengghalde 2, 8008 Zurich, Switzerland

Introduction: The „spinal mouse“ is a newly developed, easily manageable, computer assisted and non-invasive device which can be used to measure the sagittal profile of the back in terms of thoracic/ lumbar curvatures and sacral angle. asive technique with an accuracy and reliability comparable to that of radiographic analysis.

Objective: To test the reliability of measurements of posture and mobility in standing and sitting positions. Methods: 20 back-healthy volunteers (10 male); mean (SD) age 30 (5.0) years participated, who were measured three times in a standing and sitting position. Repeated measurements were made 1-2 days later and the intraclass correlation coefficient (ICC) was calculated.

Results: Within-day measurements were reliable for all parameters in standing (ICC>0.74) and sitting (ICC>0.83). Between-day measurements were also reliable in standing (ICC>0.74; Table1) and sitting postures (ICC>0.84) with the exception in each case of full flexion for the thoracic spine. The total ranges of motion were significantly higher in standing than in sitting ($p<0.05$); only the absolute values for thoracic and lumbar extension were similar in both postures.

Table 1: Results of repeated measures for the lumbar spine in standing

	Mean (day 1)	Mean (day 2)	p	ICC
upright curvature (°)	-27.9	-26.9	0.39	0.91
range of flexion (°)	56.2	55.0	0.54	0.75
range of extension (°)	10.4	11.4	0.55	0.74

Conclusion: The reliable results within and between days suggest that the “spinal mouse“ can be used with confidence in longitudinal studies in which measurements of the sagittal profile and mobility of the spine are required. Whether the measurements derived using the “spinal mouse“ reflect the underlying curvature of the osteoligamentous spine is currently under investigation.