



AB106. SOH23ABS_107. How often do we get the range of motion of the shoulder and elbow wrong?

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Background: The range of motion (ROM) of a joint is used to measure postoperative outcomes and the level of disability due to disease. Serial measurements help to monitor the progress of both disease and recovery. With rotation of trainees and other staff, the patient may be assessed by several different clinicians over the course of their recovery with the subsequent cofounder of inter-observer reliability. Our study looks at the intra- and inter-rater reliability of visual estimation of ROM truly occurring at the shoulder and elbow.

Methods: A healthy female subject with normal shoulder and elbow anatomy with no previous surgery or pathology to the glenohumeral or elbow joints was selected as a model. The limb was positioned by a consultant orthopaedic shoulder surgeon with over 10 years of experience using a handheld goniometer. The shoulder and elbow were positioned at 12 different positions and photographed. We asked 36 orthopaedic doctors across 2 trusts to record their visual estimation of the positions [13 consultants, 10 registrars and 13 senior house officer (SHO) grade doctors].

Results: The average intra-observer reliability (Cohen's kappa) for the consultants, registrars and junior doctors was 0.79, 0.75 and 0.91 respectively. The average inter-observer reliability (intraclass correlation) was 0.95, 0.93 and

0.63 respectively. Our results show the inter-observer reliability was worse than the intra-observer reliability. Doctors often estimated the position differently, even if the arm was positioned with the same ROM in 2 different photos.

Conclusions: Doctors estimating the ROM of the shoulder and elbow should use a goniometer for accuracy.

Keywords: Cohen's kappa; goniometry; inter-rater reliability; inter-rater reliability; shoulder and elbow range of movement

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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