Reliability of different methods of determination of radial shortening. Influence of ulnar and palmar tilt

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Assessment of the grade of deformity after fracture of the distal end of the radius demands an accurate method of determination of radial shortening. Radiographs of 50 patients with malunited Colles' fractures were analyzed in order to find the method which is least affected by changes in ulnar and palmar tilt. Two new landmarks, the centre-point in the distal articular surface of the radius and the capitate vertex, are introduced as possible new landmarks for radial shortening determination. Results derived from commonly used methods and the new method are compared and analyzed. These show that radial shortening measured according to the commonly used landmarks is greatly affected by changes in ulnar and palmar tilt, leading to errors. Shortening measured by the two new landmarks gives results that are less influenced by rotation of the distal fragment in the frontal and sagittal planes.

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