

# **2D x-ray and CT measurements of acute intra articular distal radius fractures in surgical decision making.**

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## **Introduction**

Surgical decision making around distal radius fracture treatment is currently based on various measurements on X-ray and CT-measurement. Based on current guidelines, surgical treatment is advised when these measurements are 2mm or larger. However, from our clinical experience, more patients can be treated non-surgically compared to the guidelines.

## **Method**

153 Non-surgically treated distal radius fracture patients responded to our questionnaires. All CT scans and fluoroscopy images were measured by two trauma surgeons, and all patients completed the DASH and PRWE questionnaires. Patients were divided into three gap and step-off groups: 0-2mm, 2-3 mm and >3mm. A Kruskal-Wallis test was performed to detect any differences in PROMs between these groups.

## **Results**

From the 153 patients included, 64% should have received operative treatment according to the guidelines but were treated non-operatively. All patients were divided into three groups: 0-2mm (non-surgical), 2-3mm (surgical), >3 mm (surgical) and also no significant differences were found. The mean DASH was  $6.8 \pm 13.5$  in group 1,  $9.6 \pm 16.0$  in group 2 and  $8.5 \pm 10.5$  in group 3 ( $p=0.238$ ), and the mean PRWE was  $8.2 \pm 15.2$  in group 1,  $11.3 \pm 18.8$  in group 2 and  $14.4 \pm 17.9$  in group 3 ( $p=0.085$ ).

## **Conclusion**

The predictive value of the 2D measurements which are currently used as the basis for surgical decision making is not evident in this study. This study has shown that gap and step displacement of up to 3mm and even above still can result in good patient outcomes.