

UCLA

UCLA Previously Published Works

Title

Range of Motion Measurements in Hand Surgery

Permalink

<https://escholarship.org/uc/item/34n4t6k1>

Journal

Annals of Plastic Surgery, 71(4)

ISSN

0148-7043

Authors

Hartzell, Tristan Layton
Pandey, Amit
Shahbazian, Jonathan H
[et al.](#)

Publication Date

2013-10-01

DOI

10.1097/sap.0b013e31824ca676

Peer reviewed

Range of motion measurements in hand surgery: should they be used for assessing outcomes?

[Tristan Layton Hartzell](#)¹, [Amit Pandey](#), [Jonathan H Shahbazian](#), [Lily A Girson](#), [Nicholas M Bernthal](#), [Prosper Benhaim](#), [Kodi K Azari](#)

- PMID: 23407249
- DOI: [10.1097/SAP.0b013e31824ca676](https://doi.org/10.1097/SAP.0b013e31824ca676)

Abstract

Purpose: The purpose of the study was to assess how context influences range of motion measurements in hand surgery.

Methods: One hundred seventy-five consecutive patients presenting to a hand surgery clinic were evaluated over 7 sessions. Passive and active motion were measured with a goniometer and by visual estimation. The affected joint was measured by 3 different examiners—one hand surgeon and 2 research assistants (RAs). Measurements by the RAs were performed under the pretense of imaginary project titles and purposes.

Results: Range of motion measurements were easily influenced. As the invented project's purpose became more specific and dependent on physician intervention, the bias became more pronounced. Measurements performed under construed project titles that promoted surgical intervention garnered outcomes that supported surgery ($P < 0.01$). Conversely, when the manufactured study's intent was to find support in conservative treatment, this outcome could also be generated ($P < 0.01$).

Discussion: Range of motion measurements can easily be influenced by the context of the study, even in seemingly blinded examiners. Reliable range of motion measurements can only be made when the examiner has no knowledge of the study's intent.