

A Unified Approach to Outcomes Assessment for Distal Radius Fractures

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Distal radius fractures are one of the most common upper extremity injuries. Currently, outcome assessment after treatment of these injuries varies widely with respect to the measures that are used, timing of assessment, and the end points that are considered. A more consistent approach to outcomes assessment would provide a standard by which to assess treatment options and best practices. In this summary, we review the consensus regarding outcomes assessment after distal radius fractures and propose a systematic approach that integrates performance, patient-reported outcomes, pain, complications, and radiographs. (*J Hand Surg Am. 2016;41(4):565–573. Copyright © 2016 by the American Society for Surgery of the Hand. All rights reserved.*)

Key words Distal radius fracture, outcomes, assessment, consensus.

DISTAL RADIUS FRACTURE (DRF) REMAINS one of the most common traumatic orthopedic conditions among adults, and the incidence among elderly individuals is increasing.^{1,2} However, despite the prevalence of DRFs, no common metric exists to assess outcomes. Similarly, no standardized algorithm exists to report outcomes of treatment.³ Mobility, strength, fracture union, and perceived function or pain each contribute to recovery. However, the existing literature is heterogeneous with respect to reported

outcomes and complications, and comparative analyses across studies remain challenging.⁴ A unified system to measure the critical facets of recovery after injury would improve our ability to compare treatments and predict objective and subjective outcomes.^{5,6} In this context, we propose a cohesive approach to outcomes assessment for DRFs and describe critical elements for clinicians and investigators to assess optimal treatments and best practices.

TOWARD UNIFIED OUTCOMES ASSESSMENT

A unified approach to outcomes assessment has immediate relevance for clinicians caring for individuals with musculoskeletal injuries as well as researchers seeking to interpret treatment outcomes. The International Consortium for Health Outcomes Measurement has convened multiple international working groups to create standardized outcome measurement sets that are both clinically meaningful to patients and feasible to complete in a clinical setting.⁷ Standardized outcome assessment guidelines have recently been reported across a variety of conditions, such as hip and knee arthritis and low back pain.⁸

Creating a unified framework to assess outcome measures for common conditions is appealing for several reasons. A standardized approach derived from expert consensus should have excellent clinical validity

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Received for publication January 25, 2016; accepted in revised form February 11, 2016.

No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

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0363-5023/16/4104-0010\$36.00/0
<http://dx.doi.org/10.1016/j.jhssa.2016.02.001>

Survey Results

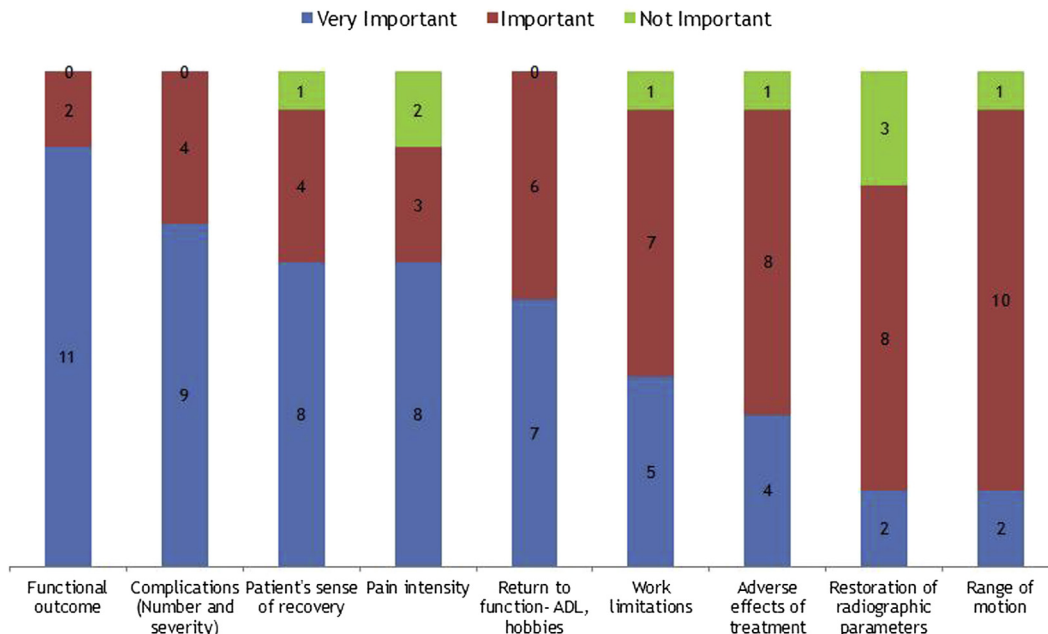


FIGURE 1: Consensus of the Distal Radius Working Group of the International Society for Fracture Repair and the International Osteoporosis Foundation regarding the importance of outcomes after DRFs. (Reprinted with permission from Goldhahn J, Beaton D, Ladd A, Macdermid J, Hoang-Kim A. Recommendation for measuring clinical outcome in distal radius fractures: a core set of domains for standardized reporting in clinical practice and research. *Arch Orthop Trauma Surg.* 134(2):197–205.⁴)

and include outcomes that are most important to patients and practitioners. Although surgeons intuitively assess many of these end points at each office visit, these observations are not routinely captured as data points. Ideally, outcome measures would provide a deliberate and systematic assessment of both treatment effectiveness and quality that is accessible for review and comparison. Registries that contain consistent outcome measures allow for evaluation across treatment groups locally, regionally, nationally, and internationally, and allow for longitudinal follow-up. From a research perspective, standardized assessment provides a common metric to define best practices and allow meaningful comparisons. Finally, a unified approach to outcomes assessment would facilitate tracking outcomes for the purpose of examining performance, quality, and costs over time. As health care systems place a greater emphasis on value, standardized outcome instruments will be increasingly important to effectively shape management algorithms.

ACHIEVING CONSENSUS FOR OUTCOMES ASSESSMENT

Between 2009 and 2011, the Distal Radius Working Group (DRWG) of the International Society for Fracture Repair and the International Osteoporosis Foundation

used literature review, surveys, and consensus panels to develop recommendations regarding outcomes that should be measured consistently to enhance clinical practice and research in the care of DRF.⁴ The DRWG defined a preliminary set of recommendations regarding domains that are important to capture.

To do this, nominal group technique was used to achieve consensus and execute a systematic review of the existing literature.⁹ The DRWG panel was composed of 21 experts including clinicians, physiotherapists, methodologists, researchers, industry representatives, and patients.⁹ The International Classification of Health, Functioning, and Disability as defined by the World Health Organization served as the foundation to identify domains most relevant to DRFs^{10,11} (Fig. 1).

Performance

Grip strength and range of motion (ROM) remain 2 of the most commonly reported outcomes in the DRF literature, and the importance of these is supported by expert consensus.^{4,12,13} Range of motion of the fingers, wrist, and forearm is important for performing activities of daily living, with decrements in motion requiring substantial compensation to accomplish daily tasks.^{14,15} Restoration of near-normal grip strength and ROM has been shown to correspond with improved

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