The Patient-Rated Wrist Evaluation (PRWE)© User Manual

December 2007

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Introduction

What is the Patient-Rated Wrist Evaluation (PRWE)?

The PRWE is a 15-item questionnaire designed to measure wrist pain and disability in activities of daily living. The PRWE allows patients to rate their levels of wrist pain and disability from 0 to 10, and consists of 2 subscales:

1) PAIN subscale (0 = no pain, 10 = worst ever)
   - Pain - 5 items

2) FUNCTION subscale (0 = no difficulty, 10 = unable to do)
   - Specific activities - 6 items
   - Usual activities - 4 items

In addition to the individual subscale scores, a total score can be computed on a scale of 100 (0 = no disability), where pain and function problems are weighted equally (see "How to Score the PRWE" for detailed scoring instructions).

The PRWE provides clinicians with a standardized outcome tool that is easy to administer and score in the clinic, and complements traditional impairment and radiographic measures. The PRWE has been used to assess wrist-related pain and disability in various populations (see Table 4 for comparative data), and its reliability (Table 1), validity (Table 2), and responsiveness (Table 3) have been tested and reported in published studies.

Objectives of the PRWE

1) To determine level of wrist disability

2) To set treatment goals

3) To determine whether change has occurred

4) To communicate in a meaningful way to payers

Instrument Development

Designing the PRWE

Active members of the International Wrist Investigators were surveyed by mail to help define the content and structure of the PRWE. Physicians were interested in using outcome measures and the response rate was 66% (n=100). Range of motion, radiographs, and grip strength were commonly used as objective measurements in clinical practice and pain, ability to do work and daily activities were frequently used to make subjective evaluations of a patient's outcome. There was no standardized patient-rating scale that can quantify wrist pain and disability, and general health surveys such as the SF- 36 were too long and did not address issues regarding the wrist. Using the survey information obtained from the clinicians, a new instrument was developed that was designed to measure the status of the affected wrist; simple, brief, and easy to score; and measured the primary constructs of pain and disability of daily living separately.

Scale items were generated using information obtained from patient and expert interviews, biomechanical literature, and other questionnaires. Items were reduced and refined through expert interviews and pilot testing on small groups of patients.

The pain subscale was designed to be sensitive to mild pain (i.e., pain that only occurs with activity), as well as more severe pain (i.e., pain that occurs at rest). The function items must be commonly performed with either hand, performed by a majority of patients, and easy to comprehend by most respondents. The specific function items were comprised of activities involving wrist motion and strength that may be affected by various wrist pathologies. The usual function items covered 4 domains—self-care, work role, home life, and recreation—and were designed to assess the patient-specific role limitation. Expert consensus and statistical analyses of pilot data were used to select the "best" items for the subscales.

To keep the instrument brief and easy to use in a clinic, the questionnaire format was limited to five pain questions and ten function questions. A 0 to 10 scale was selected because a numeric scale is more acceptable to patients, easier and score, and more responsive to change. A total score out of 100 can be computed by equally weighting the pain score (sum of five items) and the disability score (sum of ten items, divided by 2). The reliability of the pain and disability subscales and total scores are sufficiently high that they can be used separately in certain applications.

Testing the PRWE

A test-retest reliability study was conducted on patients with distal radius (n=64) or scaphoid (n=35) fractures. The total PRWE score's test-retest reliability was excellent over both the short term (2-7 days, ICC > = 0.90) and the long term (1 year, ICC = 0.91). The pain subscale also had excellent short-term and long-term reliability (ICC = 0.90, 0.91, respectively). The function subscale demonstrated excellent short-term reliability (ICC > = 0.88) and moderate long-term disability (ICC = 0.61).

For the validity study, patients with distal radius (n=101) and scaphoid fractures (n=35) completed the PRWE and the SF-36, and had their grip strength, dexterity, and range of motion tested at baseline, two-month, three-month, and six-month follow-ups. Improvements in the PRWE and SF-36 scores of distal radius group over time were evaluated to assess construct validity. The PRWE had a statistically significant 74% improvement over 6 months, whereas the SF-36 physical summary score had a statistically significant 16% improvement.

To determine the criterion validity, Pearson correlations were conducted between the PRWE and the SF-36 subscales or impairment measurements. Moderate correlations were found between the PRWE total and impairment measures ($r = -0.52, -0.61$, for radius and scaphoid groups, respectively). The PRWE scores correlated higher with the SF-36 physical component summary scores ($r = -0.46$ to -0.63) than the SF-36 mental component summary scores ($r = -0.30$ to -0.41).

(Reference: MacDermid et al., 1998 (15))

How to Score the PRWE

*To minimize nonresponse, check forms once patients complete them.

Computing the Subscales

Pain Score = Sum of the 5 pain items (out of 50) ⟶ Best Score = 0, Worst Score = 50

Function Score = Sum of the 10 function items, Divided by 2 (out of 50) ⟶ Best Score = 0, Worst Score = 50

Computing the Total Score

Total Score = Sum of pain + function scores ⟶ Best Score = 0, Worst Score = 100

Note: responses to the fifteen items are totaled out of 100, where pain and disability are equally weighted

Sample Scoring

Name: _____ Date: _____

PATIENT RATED WRIST EVALUATION

*The questions below will help us understand how much difficulty you have had with your wrist in the past week. You will be describing your **average** wrist symptoms **over the past week** on a scale of 0-10.* Please provide an answer for **ALL** questions. If you did not perform an activity, please **ESTIMATE** the pain or difficulty you would expect**.** If you have **never** performed the activity, you may leave it blank.

1. PAIN

Rate the average amount of pain in your wrist over the past week by circling the number that best describes your pain on a scale from 0-10. A zero (0) means that you did not have any pain and a ten (10) means that you had the worst pain you have ever experienced or that you could not do the activity because of pain.

Sample scale →	0 1 2 3 4 5 6 7 8 9 10 No Pain Worst Ever
RATE YOUR PAIN:	
At rest	0 **1** 2 3 4 5 6 7 8 9 10
When doing a task with a repeated wrist movement	0 1 **2** 3 4 5 6 7 8 9 10
When lifting a heavy object	0 1 2 3 4 5 6 **7** 8 9 10
When it is at its worst	0 1 2 3 4 5 6 7 8 **9** 10
How often do you have pain?	0 1 2 3 4 **5** 6 7 8 9 10 Never Always

Please turn the page.....

Pain score = 1 + 2 + 7 + 9 + 5 = 24/50

2. FUNCTION

A. SPECIFIC ACTIVITIES

*Rate the **amount of difficulty** you experienced performing each of the items listed below - over the past week, by circling the number that describes your difficulty on a scale of 0-10. A **zero** (0) means you did not experience any difficulty and a **ten** (10) means it was so difficult you were unable to do it at all.*

Sample scale →	0 (No Difficulty)	1	2	3	4	5	6	7	8	9	10 (Unable To Do)
Turn a door knob using my affected hand	0	1	2	**3**	4	5	6	7	8	9	10
Cut meat using a knife in my affected hand	0	1	2	3	**4**	5	6	7	8	9	10
Fasten buttons on my shirt	0	1	2	**3**	4	5	6	7	8	9	10
Use my affected hand to push up from a chair	0	1	2	3	4	5	6	**7**	8	9	10
Carry a 10lb object in my affected hand	0	1	2	3	4	5	6	7	**8**	9	10
Use bathroom tissue with my affected hand	0	1	2	3	**4**	5	6	7	8	9	10

B. USUAL ACTIVITIES

*Rate the **amount of difficulty** you experienced performing your **usual** activities in each of the areas listed below, over the past week, by circling the number that best describes your difficulty on a scale of 0-10. By "usual activities", we mean the activities you performed **before** you started having a problem with your wrist. A **zero** (0) means that you did not experience any difficulty and a **ten** (10) means it was so difficult you were unable to do any of your usual activities.*

Personal care activities (dressing, washing)	0	**1**	2	3	4	5	6	7	8	9	10
Household work (cleaning, maintenance)	0	1	2	**3**	4	5	6	7	8	9	10
Work (your job or usual everyday work)	0	1	2	3	**4**	5	6	7	8	9	10
Recreational activities	0	1	2	3	4	5	6	**7**	8	9	10

Function Score = (3 + 4 + 3 + 7 + 8 + 4 + 1 + 3 + 4 + 7) / 2 = 22/50

Total Score = 24 + 22 = 46/100

Interpretation

- The total PRWE score rates pain and disability equally.
- Higher score indicates more pain and functional disability (e.g., 0 = no disability).

Common Scoring

1) How are missing data treated?

If there is an item missing, you can replace the item with the mean score of the subscale.

2) What if patients leave the question blank because they cannot do it?

Make sure the patients understand that they should have answered "10" for the item and make corrections, if necessary.

3) What if patients rarely perform the task?

If patients are unsure about how to answer a task that is rarely performed, encourage them to estimate their average difficulty. Their estimate will be more accurate than leaving the question blank.

4) What if patients do not do the task?

If patients never do the task, they should leave the question blank.

Instrument Properties and Outcome Studies

Reliability

Test-Retest Reliability: the stability of the instrument over time.

Standard Error of Measurement: the confidence around the value of the score.

Minimum Detectable Change: the smallest real difference in score.

Minimal Clinically Important Difference: the smallest difference in score that is considered important or beneficial.

Validity

Content Validity: the extent to which the instrument adequately covers the concepts of interest.

Construct Validity: the extent to which the instrument corresponds to theoretical constructs.

Criterion/Concurrent Validity: the extent to which the instrument relates with a gold standard or more established measure.

Responsiveness (or Longitudinal Validity)

Responsiveness: The ability of the instrument to detect change.

Table 1 - Reliability of the PRWE in Published Studies

Study	Population	Type	PRWE Results	Comparators	
MacDermid et al., 1998 (15)	28 acute Colles (10M, 18F; Age=60.3 (11.2)); 36 treated Colles (12M, 24F; Age=44.7 (10.2)); 35 one-year Scaphoid (34M, 1F; Age=34.0 (10.0))	Short-Term (2-7 days) T-R reliability Long-Term (1-year) T-R reliability	Acute and Treated Colles: Total ICCs > 0.90 Pain ICCs > 0.90 Function ICCs > 0.85 Scaphoid Group: Total ICC = 0.91 Pain ICC = 0.90 Function ICCs > 0.61	SF-36 ICC = 0.19-0.89	
Schmitt & Di Fabio, 2004 (19)	211 patients (50.2% F; age=47.5 (18-88)) with musculoskeletal disorders; Mean follow-up = 3 months	(n=20) T-R reliability SEM MDC, 90% MID	 ICC = 0.91 5.22 12.2 24.0	DASH ICC = 0.81 5.86 13.7 17.1	SF-12 PCS ICC = 0.86 3.53 8.2 7.3

Legend: F = female; ICC = intraclass correlation coefficient; M = male; MDC = minimum detectable change; MID = minimal important difference; SEM = standard error of measurement; T-R reliability = test-retest reliability

Table 2 - Validity of the PRWE in Published Studies

Study	Population	Type	PRWE Results	Comparators		
MacDermid et al., 1998 (15)	101 patients (31M, 70F; Age=50 (16)) with distal radius (R) fractures; 35 patients (34M, 1F; Age=34 (10)) with scaphoid (S) fractures	Construct Improvement over time Criterion r (R,S) with Impairment score r (R,S) with SF-36 PCS r (R,S) with SF-36 MCS r (R,S) with SF-36 BP r (R,S) with SF-36 PF	 p < 0.0001 Pain r = -0.45, -0.56 Function r = -0.60, -0.58 Total r = -0.52, -0.61 Pain r = -0.59, -0.59 Function r = -0.58, -0.46 Total r = -0.63, -0.57 Pain r = -0.30, -0.41 Function r = -0.37, -0.36 Total r = -0.33, -0.41 Pain r = -0.72, -0.64 Function r = -0.66, -0.54 Total r = -0.73, -0.64 Pain r = -0.47, -0.52 Function r = -0.48, -0.35 Total r = -0.52, -0.48	Impairment p < 0.0001	SF-36 PCS p < 0.0001	SF-36 MCS NS
Jupiter et al., 2002 (6)	20 patients (6M, 14F; Age=68 (60-81)) with redisplaced distal radius fractures treated with plate and screw fixation	Construct r with age r with PASE r with physician-based measures r with radiographic measures	 r = 0.36 r = -0.37 r = 0.62 r = 0.16	None		
Karnezis et al., 2002 (7)	31 patients (12M, 19F; Age=46.1 (18-77)) with distal	Construct Grip strength as	 Regression coefficient =	None		

	radius fractures treated by closed reduction	predictor of PRWE score	-1.09 (95% CI = -1.76, -0.42)					
MacDermid et al., 2002 (10)	120 patients (30% M; Age=52(15)) with distal radius fractures	Construct r with wrist physical impairment r with grip r with ROM r with dexterity	 r = -0.50 r = 0.46 r = -0.41 r = -0.31	None				
Murphy et al., 2003 (17)	45 rheumatoid arthritis patients treated either with arthroplasty (23F; Age= 51.1) or arthrodesis (6M, 16F; Age=51.8)	r with age Ability to discriminate across treatments	r = 0.38 No significant differences between DASH and PRWE	DASH r = 0.48				
Angst et al., 2005 (1)	103 osteoarthritis patients (18M, 85F; Age=67.7 (38.5-90.6)) underwent resection interposition arthroplasty of thumb saddle joint	Construct r_s with DASH r_s with SF-36 PCS r_s with SF-36 MCS r_s with KFT/HFI r_s with Custom Factor 1: Physical QOL	PRWE (German) r_s=.82 r_s =.53 r_s =.04 r_s =.35 r_s =.56 r=0.72	DASH (German) rs =.68 rs =.04 rs =.44 rs=.57 r=0.79	SF-36 PCS r_s=0.68 r_s =-0.18 r_s =0.32 r_s =0.38 r=0.90	SF-36 MCS r_s=0.04 r_s=-0.18 r_s =0.15 r_s =0.14 r=-0.04	KFT/HFI r_s=0.44 r_s =0.32 r_s =0.15 r_s =0.30 r=0.16	Custom r_s=0.57 r_s =0.38 r_s =0.14 r_s =0.30 r=0.17
Karnezis et al., 2005 (8)	30 patients (19F, 11M; age=46.1(18-76) with distal radius fractures treated with closed reduction and percutaneous fixation; Mean follow-up = 12 months	Construct r_s with degree of radial shortening r with palmar angle	 Pain = 0.58 Total = 0.53 Pain = -0.40	None				

Legend: F = female; M = male; r = Pearson correlation coefficient; r_s = Spearman's correlation coefficient

Abbreviations: DASH = Disabilities of the Arm, Shoulder and Hand; KFT/HFI= Hand Functional Index of the Keitel Function Test; PASE = Physical Activity Scale for Elderly; PRWE=Patient-Rated Wrist Evaluation; QOL = Quality of Life; ROM = Range of Motion; SF-36 BP = SF-36 Bodily Pain subscale; SF-36 MCS = SF-36 Mental Component Summary Score; SF-36 PCS = SF-36 Physical Component Summary Score; SF-36 PF = SF-36 Physical Functional subscale

Table 3 - Responsiveness to Change (or Longitudinal Validity) of the PRWE in Published Studies

Study	Population	Type	PRWE Results	Comparators		
MacDermid et al., 1998 (15)	101 patients (31M, 70F; Age=50 (16)) with distal radius fractures; 35 patients (34M, 1F; Age=34 (10)) with scaphoid fractures	ES 0-6 months (calculated manually)	Total = 3.06	None		
MacDermid et al., 2000 (11)	59 patients (22M, 37F; Age=53 (18)) with distal radius fractures	SRM 0-3 months	Pain = 1.52 Specific Function = 2.47 Usual Function = 1.62 Total = 2.27	DASH 2.01	SF-36 subscales 0.81-1.33	Impairment
		3-6 months	Pain = 0.67 Specific Function = 0.62 Usual Function = 0.44 Total = 0.74	0.68	0.28-0.65	ROM = 0.84 Grip = 1.52 Dexterity = 0.24 Total = 1.42
		0-6 months	Pain = 1.95 Specific Function = 3.62 Usual Function = 2.24 Total = 2.95	2.52	1.07-1.29	
		ES 0-3 months	Pain = 1.87 Specific Function = 5.87 Usual Function = 1.95 Total = 3.16	1.86	0.82-1.11	
		3-6 months	Pain = 0.50 Specific Function = 0.44 Usual Function = 0.36 Total = 0.50	0.44	0.14-0.44	ROM = 0.67 Grip = 0.94 Dexterity = 0.19 Total = 0.81
		0-6 months	Pain = 2.42	2.32	0.91-1.65	

			Specific Function = 7.01 Usual Function = 2.29 Total = 3.91			
MacDermid et al., 2003 (13)	129 patients (32% M; Age=50 (15)) with distal radius fractures	ES 0-12 months (calculated manually)	 Pain = 2.28 Specific Function = 4.37 Usual Function = 2.47 Total = 3.46	None		
MacDermid et al., 2004 (14)	24 (out of 60 total) wrist patients (8M, 16F; Age=21-75)	0-3 months SRM ES	 1.55 1.49	DASH 1.76 1.31		
Schmitt & Di Fabio, 2004 (19)	211 patients (50.2% F; age=47.5 (18-88)) with musculoskeletal disorders	Baseline r_s with GDR 3-month r_s with GDR ES SRM Guyatt's Index Reliable change proportion MID proportion	 r_s = 0.56 (n=63) r_s = 0.61 (n=40) 1.87 1.94 1.16 0.75 0.55	DASH r_s = 0.71 (n=206) r_s = 0.67 (n=143) 1.67 1.76 1.16 0.70 0.50	SPADI r_s = 0.69 (n=138) r_s = 0.64 (n=95) 	SF-12 PCS 1.51 1.22 0.95 0.48 0.55
Schmitt & Di Fabio, 2005 (18)	211 patients (50.2% F; age=47.5 (18-88)) with musculoskeletal disorders; 155 completed 3-month follow-ups (54.8% F; age=49.6 (18-88)	 r with prospective change (change scores on GDR) r with retrospective change	PRWE Change (n = 40) r = 0.61 r = 0.62	DASH Change (n = 139) r = 0.67 r = 0.66	SF-12 PCS Change (n =139) r = 0.54 r = 0.57	SPADI Change (n = 91) r = 0.63 r = 0.62

Legend: ES = effect size; F = female; M = male; r_s = Spearman's correlation; SRM = standardized response mean

Abbreviations: DASH = Disabilities of the Arm, Shoulder and Hand; GDR = Global Disability Rating; ROM = Range of Motion

Table 4 - Comparative Scores of the PRWE in Published Studies

Study	Population	Mean Follow-up	PRWE Mean (SD)	Comparators Mean (SD)
MacDermid et al., 1998 (15)	101 patients (31M, 70F; Age=50 (16)) with distal radius (R) fractures; 35 patients (34M, 1F; Age=34 (10)) with scaphoid (S) fractures	Baseline	R: 74 (18)	Impairment Score: R: N/A; SF-36 PCS: R: 40 (11); SF-36 MCS: R: 50 (9)
		2 months	R: 42 (23)	R: N/A; R: 43 (9); R: 48 (9)
		3 months	R: 26 (20)	R: 62 (13); R: 46 (10); R: 51 (8)
		6 months	R: 19 (20) S: 21.3	R: 83 (11); R: 48 (11); R: 50 (10) S: 82 (13); S: 48 (10); S: 48 (8)
Hildebrand et al., 2000 (5)	22 patients (all M; Age=32 (16-60)) with periulnate dislocations or fracture-dislocations underwent ORIF (dorsal and volar approaches)	37 months	27 (19)	DASH = 16 (13) Mayo = 66 (17) SF-36 PCS = 45 (10) SF-36 MCS = 55 (8) Flex/Ext = 57% opposite hand Radioulnar Dev = 58% opposite hand Pron/Sup = 96% opposite hand Grip = 73% opposite hand
Ziran et al., 2000 (22)	10 patients (6M, 4F; Age=62(38-84)) with residual displaced volar fragments underwent transtendinous pinning of distal radius fractures	29 months	Pain = 11 Disability = 9.8	Palmar Flex = 60° Dorsal Flex = 48° Sup/Pron = 79/66°

MacDermid et al., 2001(12)	250 patients with distal radius fractures			DASH	SF-36 PCS	SF-36 MCS	Ext/ Flex (°)	Pron/ Sup (°)	Ulnar/ Rad (°)	Grip (kg)
		Baseline	75	54	37	51				
		8 weeks	43	31	42	50	45/36	73/58	19/11	12
		3 months	28	22	46	52	51/43	76/65	22/14	17
		6 months	20	15	48	52	57/50	78/70	23/17	23
		12 months	15	12	48	53	59/53	79/72	25/18	25

Moro et al.,	24 patients (age=54)	39 months		Wrist	DASH	SF-36 PCS	SF-36 MCS	Mayo Elbow

2001 (16)	with radial head fractures treated with arthroplasty with metal radial head implant		17 (21)	Outcome Score 60 (10) 17 (19) 47 (10) 49 (13) 80 (16)
Jupiter et al., 2002 (6)	20 patients (6M, 14F; Age=68 (60-81)) with redisplaced distal radius fractures treated with plate and screw fixation	38 months	14 (range = 0-73)	PASE = 177 (range = 50-343) Ext/Flex = 90/75% opposite hand Rad/Ulnar dev = 75/95% opposite hand Pron/Sup = 95/95% opposite hand Grip = 80% opposite hand Modified Garland & Werley grade: 7 excellent, 11 good
Konrath & Bahler, 2002 (9)	25 patients (14M, 11F; Age=53 (29-89)) with unstable distal radius fractures treated with fragment-specific fixation	29 months	19.0 (22.0)	DASH = 17.0 (18.0) Wrist Palmerflex/Dorsiflex = 54 (11) /61 (10)° Rad/Ulnar Dev= 18 (5)/25 (7)° Forearm Sup/Pron = 82 (13)/77 (12)° Grip = 83% opposite hand
MacDermid et al., 2002 (10)	120 patients (30% M; Age=52(15)) with distal radius fractures	Baseline 6 months	77 (21) 19 (18)	None
Vinnars et al., 2002 (20)	21 scaphoid patients underwent silicone implant arthroplasty	10-24 years	Median Pain = 27 (range = 26) Function = 22 (range = 23)	None
MacDermid et al., 2003 (13)	129 patients (32% M; Age=50 (15)) with distal radius fractures	Baseline 2 months 3 months 6 months	Pain = 33.0 (10.8) Specific = 54.0 (10.8) Usual = 28 (9.9) Total = 75.0 (17.8) Pain = 21.0 (11) Specific = 29.6 (18.4) Usual = 15.1 (11.7) Total = 43.3 (23.0) Pain = 15.3 (11.0) Specific = 16.9 (15.3) Usual = 8.6 (9.5) Total = 28 (21.3) Pain = 11.7 (11.2) Specific = 10.8 (13.4) Usual = 5.8 (8.1)	None

		1 year	Total = 20.0 (20.6) Pain = 8.4(10.0) Specific = 6.8 (11) Usual = 3.5 (6) Total = 13.5 (17.0)	
Harness et al., 2004 (4)	8 volar Barton's fractures patients (2M, 6F; Age=67 (58-76)) with a subtle fracture in dorsal metaphyseal cortex treated with volar plates and screws	48 months	16 (range = 0-35)	Ext/Flex = 94/84% opposite hand Sup/Pron = 98/95% opposite hand Ulnar/Rad Dev = 90/90% opposite hand Grip = 79% opposite hand Modified Gartland & Werley grade: 1 excellent, 6 good
Schmitt & Di Fabio, 2004 (19)	211 patients (50.2% F; age=47.5(18-88)) with musculoskeletal disorders	 Baseline 3 months	(n=44) 46.4 (17.1) 21.0 (20.0)	DASH (n=154) 32.1 (17.2) 18.2 (16.4) SF-12 PCS (n=154) 40.3 (7.8) 46.7 (9.4) SF-12 MCS (n=154) 53.2 (9.6) 53.4 (9.2) GDR (n=143) 3.6 (1.4) 2.4 (1.1) SPADI (n=103) 41.3 (21.1) 25.4 (22.4)
Angst et al., 2005 (1)	103 osteoarthritis patients (18M, 85F; Age=67.7 (38.5-90.6)) underwent resection interposition arthroplasty of thumb saddle joint	6.2 years	(German PRWE) Pain = 77.0* (24.0) Function = 81.4* (23.0) Total = 79.0* (22.5)	DASH Symptoms = 79.5* (19.3) DASH Function = 78.7* (19.0) DASH Total = 78.4* (17.7) SF-36 PCS = 43.3 (10.8) SF-36 MCS = 53.4 (9.9) HFI/KFT = 90.6 (15.8) Custom = 64.2 (8.5) Rad Abd/Palmar Abd = 86.2(14.7)/ 51.3(23.5)° Grip (kg) = 20.0 (8.6) Pinch (kg) = 4.9(1.8)
Brooks et al., 2005 (2)	28 patients with suspected schapoid fractures randomized to: MRI group (n=11; age=35.0; 64% M) or control group (n=17; age=29.0; 35% M)		MRI group: Pain = 5.9 (0.07) Function = 7.08 (0.70) Control group: Pain = 6.5 (0.56) Function = 8.03 (0.56)	None
Wright et al., 2005 (21)	32 patients with distal radius fractures:	EF group: 47 months	EF group: 19 (range = 0-58)	EF group DASH = 15 (range = 0-41) ORIF group DASH = 16 (range = 0-67)

	11 external fixation (EF) patients (3M, 8F; Age=50 (21-64)) vs. 21 open reduction internal fixation (ORIF) patients (11M, 10F; Age=50.1(19-74))	ORIF group: 17 months	ORIF group: 20 (range 0-80)	Ext/Flex = 59/57° Sup/Pron = 76/82° Rad/Ulnar Dev = 21/36° Grip = 99% (affected X 100 / grip unaff)	Ext/Flex = 63/64° Sup/Pron = 80/78° Rad/Ulnar Dev = 23/36° Grip = 75% (affected X 100 / grip unaff)
De Smet et al., 2006 (3)	21 patients (16M, 5F; age=39.0) with Kienbock's disease underwent proximal row carpectomy	67 months	Total = 30 (range=0-83)	DASH 22 (range = 0-78)	Grip Strength 65% opposite hand

*Score transformed so higher value reflects better health

Abbreviations: DASH = Disabilities of the Arm, Shoulder and Hand; Ext = Extension; F = Female; Flex = Flexion; GDR = Global Disability Rating; HFI/KFT = Hand Functional Index of the Keitel Function Test; M = Male; ORIF = Open Reduction Internal Fixation; Palmar Abd = Palmar Abduction; PASE = Physical Activity Scale for Elderly; Pron = Pronation; PRWE = Patient-Rated Wrist Evaluation; Rad Abd = Radial Abduction; Rad Dev = Radial Deviation; SF-36 MCS = SF-36 Mental Component Summary Score; SF-36 PCS = SF-36 Physical Component Summary Score; SPADI = Shoulder Pain and Disability Index; Sup = Supination; Ulnar Dev = Ulnar Deviation

Modified Version: The Patient-Rated Wrist/Hand Evaluation (PRWHE)

The PRWE was modified to allow clinicians to assess hand conditions. The PRWHE has the same items and scoring system as the PRWE. The PRWHE is preferred in hand/wrist clinics as it is more specific and easier to use.

Changes between the PRWE and PRWHE

1) In the PRWHE, the term "wrist" is replaced with "wrist/hand".

2) The PRWHE has an optional aesthetics question on the form (not part of the scale scoring).

Responsiveness of the PRWHE

Instrument	All (n=60)		Hand (n=36)		Wrist (n=24)	
	SRM	ES	SRM	ES	SRM	ES
PRWHE	1.51	1.61	1.49	1.67	1.55	1.49
DASH	1.37	1.49	1.29	1.59	1.76	1.31
Esthetics	0.89	0.94	0.89	0.97	0.87	0.89

SRM = Standardized Response Mean; ES = Effect Size

(Reference: MacDermid et al., 2004 (14))

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