

The following content was supplied by the authors as supporting material and has not been copy-edited or verified by JBJS.

Appendix 1. A comparison of all relevant CONSORT criteria.		
Relevant consort criteria	Sodersjukhuset Hospital	Danderyd Hospital
Hypothesis	Volar locking plate is superior to non-operative treatment.	No clinically significant difference in patient reported outcome between operative and conservative treatment after 1 year.
Trial design	Randomized controlled trial	Randomized controlled trial
Changes to methods	The age limit was lowered from 75 years to 70 years from September 2015.	3 month-follow-up ceased in November 2011 due to a re-organization of the research team which made it impossible to pursue the 3-month follow-up. Therefore, 29 patients (19 in the nonoperative group and 10 in the volar locking plate group) were not evaluated at 3 months.
Eligibility criteria	Inclusion criteria: Men and women ≥ 75 years of age with a distal radius fracture. Exclusion criteria: High-energy trauma, < 20 degrees of dorsal tilt, > 1 mm intra-articular step-off, open fracture, ulnar fracture proximal to the ulnar styloid, former disability of either wrist, additional fracture of the ipsilateral upper extremity, open fracture, > 3 days delayed diagnosis, medical condition contradicting general anaesthesia, rheumatoid arthritis or severe joint disorder, dementia, alcohol/drug abuse, not speaking Swedish, not resident within the catchment area of the hospital, dependency in activities of daily living.	Inclusion criteria: Men and women ≥ 75 years of age with a dorsally angulated distal radius fracture (radial shortening ≥ 4 mm and/or dorsal angulation $\geq 20^\circ$). Exclusion criteria: High-energy trauma, ulnar fracture proximal to the ulnar styloid, a previous displaced fracture of the distal radius, additional fractures of the ipsilateral upper extremity, open fracture, > 6 days delayed diagnosis, terminal disease, those not fit for surgery (ASA 4), patients who are unwilling or unable to cooperate with follow-up (advanced dementia or those who, for any other reason, are deemed not suitable for inclusion in a randomized controlled trial, not speaking Swedish, not resident within the catchment area of the hospital, dependency in activities of daily living.
Settings and locations	Second level trauma centre in the capital of Sweden during 2013-2017.	Second level trauma centre in the capital of Sweden during 2009-2017.
Interventions	Volar plating with a fixed-angle plate, TCP (DePuy Synthes,	Operative treatment: Volar plating with a fixed-angle plate, Acu-loc

	Warsaw, Indiana, USA) or DVR (ZimmerBiomet, Warsaw, Indiana, USA) plate. Non-operative treatment: Closed reduction and fixation with a dorsoradial plaster cast for 4-5 weeks.	(Acumed, Oregon, USA) or Königsee (Swemac, Linköping, Sweden). Non-operative treatment: Closed reduction and fixation with a dorsoradial plaster cast for 4-5 weeks.
Outcome measures	Primary outcome: PRWE. Secondary outcomes: DASH, EQ-5D, Range of motion, grip strength, complications, radiologic measurements. Range of motion and grip strength was measured by an independent physiotherapist. PROMs were obtained by mail but if they were not filled in they were completed in clinic. No secondary outcomes were listed at Clinicaltrials.gov.	Primary outcome: DASH. Secondary outcomes: PRWE, EQ-5D, Range of motion, grip strength, complications, radiologic measurements. Range of motion and grip strength was measured by an independent occupational therapist. PROMs were obtained by mail but if they were not filled in they were completed in clinic. EQ-5D was not registered at Clinicaltrials.gov.
Changes to outcome measures	No changes	No changes
Determination of sample size	120 patients	130 patients
Block size	20, without stratification	10, without stratification
Allocation concealment	Concealed opaque envelopes	Concealed opaque envelopes
Implementation, enrollment	Eligible patients were contacted and asked for participation at the emergency visit, or by telephone within the next few days. If they agreed to participate, written informed consent was obtained.	Eligible patients were contacted and asked for participation at the emergency visit, or by telephone within the next few days. If they agreed to participate, written informed consent was obtained.
Blinding	Neither investigators nor patients were blinded to the allocation.	Neither investigators nor patients were blinded to the allocation.
Statistical methods	Intention-to-treat principle.	Intention-to-treat principle. RED Cap (Research Electronic Data Capture) tools were used to support data capture.
Dates defining recruitment and follow-up	Recruitment: April 2013 to February 2017. Follow-up at 3 and 12 months.	Recruitment: December 2009 to January 2017. Follow-up at 3 and 12 months until November 2011, thereafter only at 12 months. The 3-month follow-up did not include radiographic evaluation.
Numbers analyzed	70	52
Registration number and name of trial registry	Registered at ClinicalTrials.gov (NCT02154620).	Registered at ClinicalTrials.gov (NCT01268397).

Appendix 2. All data from Tables II to V presented for each site separately.

A. Baseline Characteristics

Sodersjukhuset Hospital	Non-operative (n=35)	Volar Locking Plate (n=35)	P-value
Median age in years at injury (range)	76 (70-89)	78 (70-90)	0.181*
Sex			
Female	29 (83%)	34 (97%)	0.106**
Injury to dominant hand			
Yes	9 (26%)	15 (43%)	0.131***
AO/OTA-classification			
A2	4 (11%)	3 (9%)	0.202***
A3	17 (49%)	23 (66%)	
C1	13 (37%)	6 (17%)	
C2	1 (3%)	3 (9%)	
C3	0	0	
Danderyd Hospital	Non-operative (n=29)	Volar Locking Plate (n=23)	P-value
Median age in years at injury (range)	81 (75-98)	81 (75-89)	0.810*
Sex			
Female	27 (93%)	21 (91%)	1.000**
Injury to dominant hand			
Yes	14 (48%)	12 (52%)	0.780***
AO/OTA-classification			
A2	6 (21%)	3 (13%)	0.768***
A3	11 (38%)	10 (44%)	
C1	7 (24%)	5 (22%)	
C2	5 (17%)	4 (17%)	
C3	0	1 (4%)	

*Mann-Whitney U test

**Fisher's exact test

***Chi-square test

B. Clinical outcomes

Sodersjukhuset Hospital	Non-operative (n=34 at 12 months)	Volar Locking Plate (n=34 at 12 months)	P-value*
3 months			
PRWE score	34.2 (21.6), 35.5 (41.0)	21.3 (20.8), 10.5 (29.5)	0.012
DASH score	31.3 (19.4), 29.2 (33.3)	23.7 (20.0), 16.7 (28.3)	0.093
EQ-5D score	0.748 (0.222), 0.796 (0.120)	0.811 (0.168), 0.796 (0.310)	0.339
Extension, degrees	48 (11), 50 (17)	46 (11), 50 (15)	0.351
Flexion, degrees	47 (17), 45 (24)	61 (14), 62 (18)	<0.001
Supination, degrees	94 (17), 95 (23)	99 (13), 95 (20)	0.609
Pronation, degrees	82 (11), 82 (16)	85 (9), 90 (8)	0.070
Ulnar deviation, degrees	23 (6), 22 (8)	25 (5), 25 (8)	0.208
Radial deviation, degrees	21 (5), 20 (6)	21 (4), 20 (5)	0.990
Grip strength, %	52.5 (32.6), 55.5 (44.0)	71.9 (18.0), 70.8 (22.0)	0.004
12 months			
PRWE score	23.4 (22.7), 18.0 (40)	15.6 (16.3), 10.8 (23.6)	0.217
DASH score	24.3 (20.1), 22.9 (33.1)	18.7 (18.0), 10.2 (28.1)	0.297
EQ-5D score	0.735 (0.241), 0.796 (0.170)	0.781 (0.250), 0.796 (0.310)	0.258
Extension, degrees	53 (9), 55 (10)	52 (7), 52 (9)	0.440
Flexion, degrees	54 (16), 50 (16)	68 (11), 70 (20)	<0.001
Supination, degrees	101 (15), 105 (18)	105 (13), 105 (17)	0.540
Pronation, degrees	85 (9), 88 (11)	87 (8), 90 (6)	0.284
Ulnar deviation, degrees	26 (5), 25 (8)	28 (5), 29 (5)	0.172
Radial deviation, degrees	24 (5), 25 (5)	23 (3), 23 (5)	0.265
Grip strength, %	76.1 (18.2), 78.6 (21.0)	92.3 (19.5), 91.2 (31.0)	0.003

All values are presented as means (standard deviation) and *medians (interquartile range)*

*Mann-Whitney U test

Danderyd Hospital	Non-operative (n=29 at 12 months)	Volar Locking Plate (n=22 at 12 months)	P-value*
3 months			
PRWE score	34.1 (21.3), 33.0 (30.3)	18.5 (19.5), 9.0 (33.1)	0.088
DASH score	26.6 (19.2), 21.6 (26.7)	14.4 (16.0), 11.2 (17.3)	0.088
EQ-5D score	0.790 (0.091), 0.796 (0.080)	0.787 (0.231), 0.805 (0.280)	0.771
Extension, degrees	56 (6), 55 (10)	49 (10), 50 (15)	0.123
Flexion, degrees	42 (11), 38 (18)	45 (10), 48 (14)	0.381
Supination, degrees	79 (11), 83 (19)	82 (13), 90 (18)	0.228
Pronation, degrees	82 (11), 90 (17)	89 (2), 90 (0.0)	0.254
Ulnar deviation, degrees	25 (8), 25 (11)	27 (11), 23 (19)	0.771
Radial deviation, degrees	16 (8), 15 (11)	21 (7), 20 (10)	0.140
Grip strength, %	51.4 (14.6), 48.7 (17.0)	74.2 (21.4), 75.5 (39.0)	0.013
12 months			
PRWE score	21.3 (20.0), 16.0 (29)	8.1 (11.6), 4.5 (10.7)	0.012
DASH score	21.7 (19.8), 16.7 (24.4)	10.8 (14.6), 4.6 (17.5)	0.018
EQ-5D score	0.801 (0.174), 0.796 (0.270)	0.814 (0.226), 0.806 (0.280)	0.488
Extension, degrees	60 (14), 60 (21)	61 (13), 60 (20)	0.991
Flexion, degrees	48 (12), 46 (15)	56 (12), 50 (25)	0.022
Supination, degrees	79 (10), 80 (16)	83 (8), 83 (10)	0.162
Pronation, degrees	80 (11), 80 (20)	82 (11), 88 (16)	0.308
Ulnar deviation, degrees	26 (12), 25 (16)	34 (16), 30 (15)	0.071
Radial deviation, degrees	22 (8), 24 (17)	21 (5), 20 (8)	0.525
Grip strength, %	87.2 (28.5), 81.3 (28.0)	101.4 (28.3), 104.0 (40.0)	0.061

All values are presented as means (standard deviation) and *medians (interquartile range)*

*Mann-Whitney U test

C. Radiographic outcomes

Sodersjukhuset Hospital	Non-operative (n=32 at 12 months)	Volar Locking Plate (n=32 at 12 months)	P-value*
Dorsal tilt, degrees			
before treatment	28 (7), 27 (13)	33 (8), 33 (11)	0.012
after treatment	9 (10), 9 (11)	-4 (6), -4 (7)	<0.001
at 3 months	16 (12), 17 (13)	-3 (8), -5 (11)	<0.001
at 12 months	13 (15), 18 (18)	-2 (8), -3 (10)	<0.001
Radial inclination, degrees			
before treatment	12 (6), 12 (7)	12 (5), 12 (7)	0.866
after treatment	18 (4), 19 (4)	19 (4), 18 (7)	0.234
at 3 months	13 (4), 13 (6)	20 (6), 19 (9)	<0.001
at 12 months	15 (6), 15 (6)	20 (4), 19 (6)	<0.001
Radial shortening, mm			
before treatment	2.2 (1.8), 2.3 (3.8)	2.7 (1.6), 2.7 (2.1)	0.442
after treatment	0.6 (1.6), 0.0 (2.1)	0.1 (0.5), 0.0 (0.0)	0.020
at 3 months	3.0 (2.0), 3.0 (3.3)	0.8 (1.6), 0.0 (0.0)	<0.001
at 12 months	2.6 (1.8), 2.5 (2.5)	0.8 (1.3), 0.0 (1.6)	<0.001

*Mann-Whitney's test

Danderyd Hospital	Non-operative (n=26 at 12 months)	Volar Locking Plate (n=21 at 12 months)	P-value*
Dorsal tilt, degrees			
before treatment	24 (9), 25 (12)	27 (12), 26 (16)	0.618
after treatment	7 (7), 6 (11)	4 (7), 3 (7)	0.035
at 3 months	Not performed	Not performed	
at 12 months	15 (11), 17 (17)	5 (9), 3 (13)	0.001
Radial inclination, degrees			
before treatment	16 (9), 16 (8)	18 (13), 15 (8)	0.926
after treatment	17 (8), 19 (9)	15 (11), 17 (11)	0.433
at 3 months	Not performed	Not performed	
at 12 months	13 (8), 15 (10)	15 (11), 19 (18)	0.103
Radial shortening, mm			
before treatment	2.5 (2.7), 2.3 (4.0)	1.8 (2.0), 2.0 (2.7)	0.717
after treatment	0.6 (1.9), 0.0 (1.7)	0.0 (0.0), 0.0 (0.0)	0.118
at 3 months	Not performed	Not performed	
at 12 months	2.9 (2.6), 2.0 (5.1)	0.2 (0.7), 0.0 (0.0)	<0.001

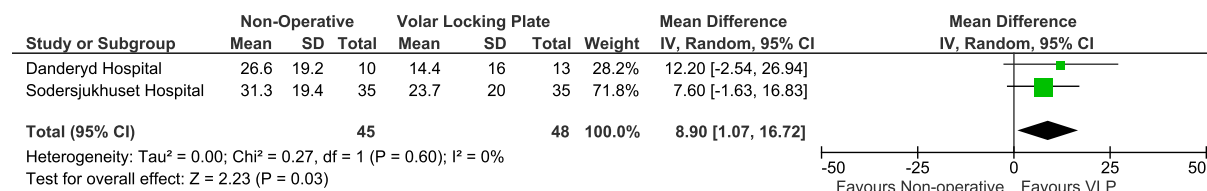
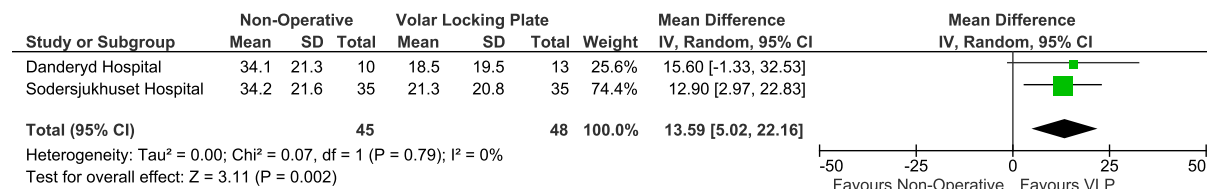
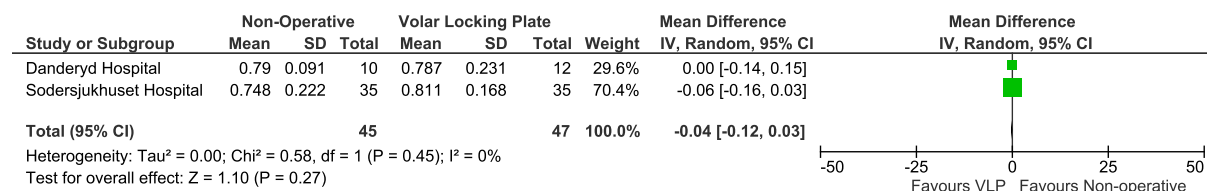
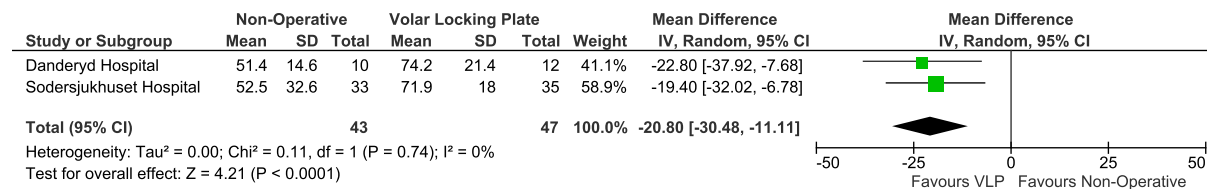
*Mann-Whitney U test

D. Complications

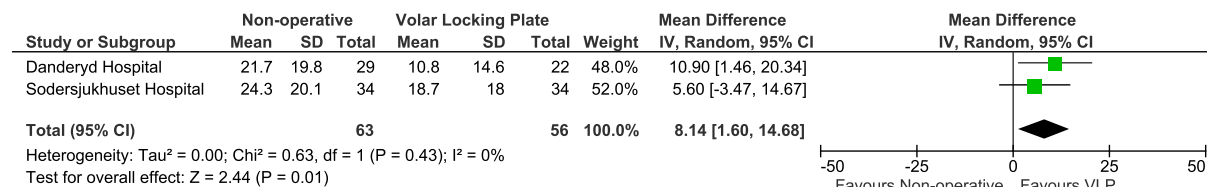
Sodersjukhuset Hospital		Non-operative	Volar Locking Plate
Major complications /reoperations	Carpal tunnel release	4	1
	Flexor tendon rupture	0	0
	Volar plate fixation	2	0
	Atrial fibrillation and myocardial ischemia	0	0
	Corrective osteotomy	3	0
	Plate extraction due to flexor tenosynovitis	0	2
	Plate extraction and carpal tunnel release due to carpal tunnel syndrome	0	2
	Total	9* (6 patients=17%)	5 (14%)
Minor complications	Nerve numbness	1	4
	CRPS	1	0
	Wound infection	0	2
	Scar adherence/keloid	0	2
	Total	2 (6%)	8 (23%)

*Three patients had two reoperations, carpal tunnel release and later on corrective osteotomy

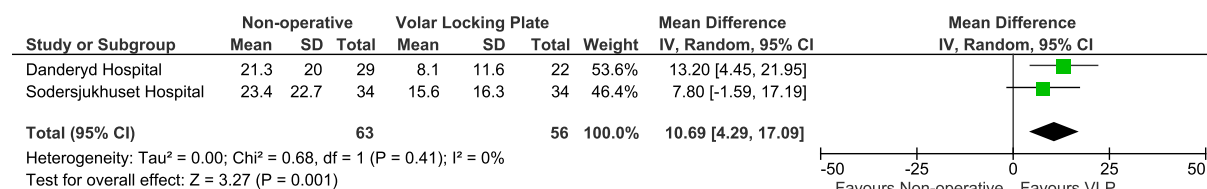
Danderyd Hospital		Non-operative	Volar Locking Plate
Major complications/ reoperations	Carpal tunnel release	1	1
	Flexor tendon rupture	0	1
	Volar plate fixation	0	0
	Atrial fibrillation and myocardial ischemia	0	1
	Corrective osteotomy	0	0
	Plate extraction due to flexor tenosynovitis	0	0
	Plate extraction and carpal tunnel release due to carpal tunnel syndrome	0	0
	Total	1 (3%)	3 (14%)
Minor complications	Nerve numbness	4	3
	CRPS	1	0
	Wound infection	0	0
	Scar adherence/keloid	0	0
	Total	5 (17%)	3 (14%)

Appendix 3**Pooled Analyses of PROMs and Grip Strength****DASH 3 months****PRWE 3 months****EQ-5D 3 months****Grip strength 3 months**

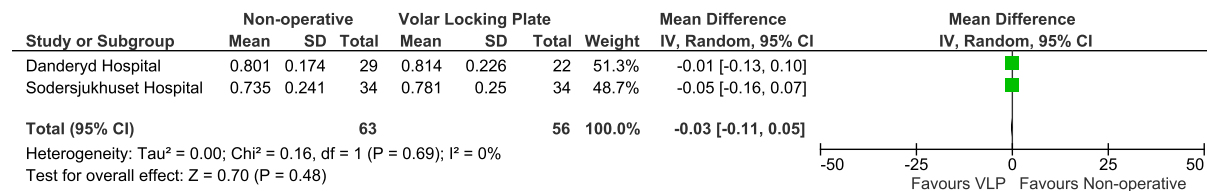
DASH 12 months



PRWE 12 months



EQ-5D 12 months



Grip strength 12 months

