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Appendix 1 – search strategy

Database: MEDLINE(R) All including Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946-current>

Search Strategy:

- 1 (distal* adj10 radi* adj10 fracture*).ti,ab,kw. (6026)
- 2 Colles' Fracture/ (849)
- 3 wrist fracture*.mp. (1112)
- 4 1 or 2 or 3 (7494)
- 5 volar lock* plat*.ti,ab,kw. (499)
- 6 Fracture Fixation, Internal/ (33613)

7 ((ORIF or ORIFs or open reduction internal fixation* or open reduction) and internal fixation*).ti,ab,kw. (7155)

- 8 fracture fixation/ (18109)
- 9 or/5-8 (53230)

10 ((conservativ* or nonsurgical* or non-surgical* or nonoperativ* or non-operativ* or traditional*) adj5 (management or treatment* or intervention*)).ti,ab,kw. (95068)

- 11 closed reduction*.ti,ab,kw. (5225)
- 12 Casts, Surgical/ (8582)
- 13 Splints/ (8610)
- 14 ((plaster* or cast*) adj5 (fixation or immobili#ation*)).ti,ab,kw. (2928)
- 15 10 or 11 or 12 or 13 or 14 (115830)
- 16 bone wires/ or (kirschner wire* or k-wire*).ti,ab,kw. (8689)
- 17 15 not 16 (114359)
- 18 (percutaneous adj5 pin*).ti,ab,kw. (954)
- 19 17 not 18 (113971)
- 20 Randomized controlled trial.pt. (493887)
- 21 Controlled clinical trial.pt. (93410)
- 22 Randomi?ed.ab. (550889)
- 23 Placebo.ab. (202711)

- 24 Randomly.ab. (321220)
- 25 Clinical trials as topic.sh. (189050)
- 26 Trial.ti. (207652)
- 27 20 or 21 or 22 or 23 or 24 or 25 or 26 (1284417)
- 28 exp animals/ not humans.sh. (4640699)
- 29 27 not 28 (1183234)
- 30 Meta analysis.mp. or review.pt. or search\$.tw. (2896527)
- 31 29 not 30 (975053)
- 32 4 and 9 and 31 (274)
- 33 4 and 19 and 31 (173)
- 34 4 and 9 and 19 and 31 (78)
- 35 32 or 33 or 34 (369)
- 36 limit 35 to yr=2015-Current (129)

Appendix 2 – Assessment of study quality

2.1 Explanatory notes for Cochrane Collaboration Risk of Bias

Arora, 2011 [38]		
Bias	Authors'	Support for judgement
	judgement	
Random sequence	Unclear risk	The method of randomisation used in this study wasn't
generation		described in the article.
(selection bias)		
Allocation concealment	Low risk	According to the study article, after consent was obtained
(selection bias)		from participants, they were randomised to one of the two
		treatment groups using sequentially numbered, sealed
		envelopes.
Blinding of participants	High risk	Given that one of the treatments involved surgery and that
and personnel		the other treatment didn't, blinding of participants and of
(performance bias)		investigators to the treatment groups wasn't possible.
Blinding of outcome	High risk	Radiographic assessor was not a treating surgeon and was
assessment (detection		blinded to functional outcome but not to the treatment type.
bias)		
Incomplete outcome	High risk	Low overall follow-up rate (73/90 = 81%)
data (attrition bias)		
Selective reporting	Low risk	All outcomes were reported at determined timeframes.
(reporting bias)		
Other bias	Low risk	None detected

Bartl, 2014 [39]		
Bias	Authors'	Support for judgement
	judgement	
Random sequence	Low risk	Random, centre-stratified block assignment on a 1:1 basis
generation		was achieved by means of the online resource
(selection bias)		(www.randomizer.at).
Allocation concealment	Low risk	Random, centre-stratified block assignment on a 1:1 basis
(selection bias)		was achieved by means of the online resource.
Blinding of participants	High risk	Given that one of the treatments involved surgery and that
and personnel		the other treatment didn't, blinding of participants and of
(performance bias)		investigators to the treatment groups wasn't possible.
Blinding of outcome	Unclear risk	Not described in the article
assessment (detection		
bias)		
Incomplete outcome	High risk	Low overall follow-up (149/185 = 19%) and differential
data (attrition bias)		follow-up (68/94 = 72% for surgery and 81/91 = 89% for
		non-surgery).
Selective reporting	Low risk	All outcomes were reported at determined timeframes.
(reporting bias)		·
Other bias	Low risk	None detected

Kapoor, 2000 [40]		
Bias	Authors'	Support for judgement

	judgement	
Random sequence generation (selection bias)	Unclear risk	Not described in the article
Allocation concealment (selection bias)	Unclear risk	Not described in the article
Blinding of participants and personnel (performance bias)	High risk	Given that one of the treatments involved surgery and that the other treatment didn't, blinding of participants and of investigators to the treatment groups wasn't possible.
Blinding of outcome assessment (detection bias)	Unclear risk	Not described in the article
Incomplete outcome data (attrition bias)	High risk	Categorical data is represented for functional outcomes for 66% (19/29) of the treatment group and 70% (23/33) of the comparator group. It's not described in the article how the authors dealt with missing data.
Selective reporting (reporting bias)	High risk	Some outcomes are described in the text of the results but there is no presentation of supporting data nor reproducible statistical analysis.
Other bias	Low risk	None detected

Martinez-Mendez, 2018	[41]	
Bias	Authors'	Support for judgement
	judgement	
Random sequence	Low risk	Randomization was performed by the
generation		method of random number generation provided in
(selection bias)		opaque envelopes.
Allocation concealment	Low risk	Random number generation provided in
(selection bias)		opaque envelopes.
Blinding of participants	High risk	Given that one of the treatments involved surgery and that
and personnel		the other treatment didn't, blinding of participants and of
(performance bias)		investigators to the treatment groups wasn't possible.
Blinding of outcome	Unclear risk	The article describes that the clinical and radiological
assessment (detection		assessments could not be blinded because of surgical
bias)		wounds and hardware in the surgical patients. However, the
		radiological assessments were performed by an independent
		observer using digitised radiographs and software and the
		annual clinical assessments were performed by an
		independent observer not involved in the treatment.
Incomplete outcome	Low risk	The 24-month follow-up included 100% of randomised
data (attrition bias)		participants.
Selective reporting	Unclear risk	The article describes that assessments were made at five
(reporting bias)		timepoints but only the results from the final (24-month)
		timepoint were presented in the article.
Other bias	Low risk	None detected

Mulders, 2019 [24]		
Bias	Authors'	Support for judgement
	judgement	
Random sequence	Low risk	Stratified block randomization was performed digitally.
generation		
(selection bias)		
Allocation concealment	Unclear risk	Allocation concealment was not specifically described in the
(selection bias)		report.
Blinding of participants	High risk	Given that one of the treatments involved surgery and that
and personnel		the other treatment didn't, blinding of participants and of
(performance bias)		investigators to the treatment groups wasn't possible.
Blinding of outcome	Unclear risk	The article describes that the clinical and radiological
assessment (detection		assessments could not be blinded because of surgical
bias)		wounds and hardware in the surgical patients. Participants
		completed the primary outcome either online or on paper at
		their clinic appointment. Clinical assessment was performed
		by an independent examiner.
Incomplete outcome	Low risk	At 12 months, data from 96% of the intervention group
data (attrition bias)		(46/48) and 91% of the control group (40/44) were
		included. Overall 86/92 = 93%
Selective reporting	Low risk	All outcomes were reported at determined timeframes.
(reporting bias)		
Other bias	Low risk	None detected

Saving, 2019 [42]		
Bias	Authors'	Support for judgement
	judgement	
Random sequence	Low risk	The article reports that randomization was performed in a
generation		1:1 ratio without stratification.
(selection bias)		
Allocation concealment	Low risk	Allocation was concealed using concealed opaque envelopes
(selection bias)		
Blinding of participants	High risk	Given that one of the treatments involved surgery and that
and personnel		the other treatment didn't, blinding of participants and of
(performance bias)		investigators to the treatment groups wasn't possible.
Blinding of outcome	High risk	The article reports that evaluation was performed at 3 and
assessment (detection		12 months by unblinded observers.
bias)		
Incomplete outcome	High risk	Low overall follow-up for primary outcome at 12 months
data (attrition bias)		(119/140 = 85%) and differential follow-up (56/68 = 82%
		for surgery and 63/72 = 88% for non-surgery).
Selective reporting	Low risk	All outcomes were reported at determined timeframes.
(reporting bias)		
Other bias	Low risk	None detected

Sharma, 2014 [43]		
Bias	Authors'	Support for judgement
	judgement	

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VOLAR LOCKING PLATE FIXATION VERSUS CLOSED REDUCTION FOR DISTAL RADIAL FRACTURES IN ADULTS. A SYSTEMATIC REVIEW AND META-ANALYSIS

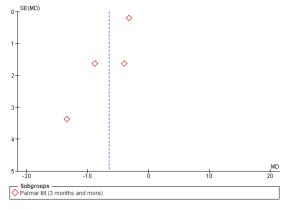
http://dx.doi.org/10.2106/JBJS.RVW.20.00022

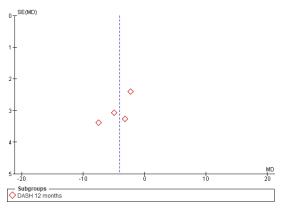
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Random sequence generation (selection bias)	High risk	Participants weren't randomised to treatment groups. They were allocated by alternate assignment.
Allocation concealment (selection bias)	High risk	Alternate allocation is predictable.
Blinding of participants and personnel (performance bias)	High risk	Given that one of the treatments involved surgery and that the other treatment didn't, blinding of participants and of investigators to the treatment groups wasn't possible.
Blinding of outcome assessment (detection bias)	Unclear risk	Not described in the article
Incomplete outcome data (attrition bias)	Low risk	The authors haven't described any missing data nor dropouts. The assumption is that the data analysis includes outcomes for all 64 participants.
Selective reporting (reporting bias)	Low risk	All outcomes were reported at determined timeframes.
Other bias	Lowrisk	None detected

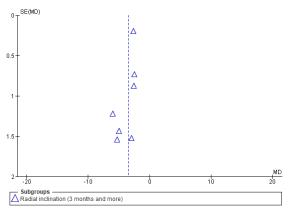
Sirnio, 2019 [25]		
Bias	Authors'	Support for judgement
	judgement	
Random sequence	Low risk	Block randomization was performed by the
generation		method of random number generation provided in
(selection bias)		opaque envelopes.
Allocation concealment	Low risk	Random number generation provided in
(selection bias)		opaque envelopes.
Blinding of participants	High risk	Given that one of the treatments involved surgery and that
and personnel		the other treatment didn't, blinding of participants and of
(performance bias)		investigators to the treatment groups wasn't possible.
Blinding of outcome	Unclear risk	The article describes that the clinical assessments were
assessment (detection		conducted by a clinician who wasn't involved in the patients
bias)		care. However, the radiological assessments were performed
		by an investigator.
Incomplete outcome	Unclear risk	Low overall follow-up at 3/12 and at 24/12 (68/80 = 85%)
data (attrition bias)		and differential follow-up (33/38 = 87% for surgery and
		35/42 = 83% for non-surgery). Researchers used multiple
		imputation to fill missing data in the primary outcome.
Selective reporting	Low risk	Upon request, the authors provided standardises data for
(reporting bias)		timeframes that were no presented in the published
		report.
Other bias	Low risk	None detected

2.2 Funnel plots for outcomes included in summary of findings

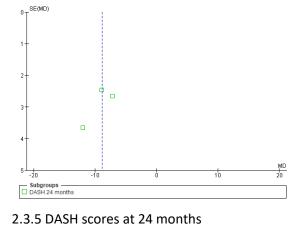




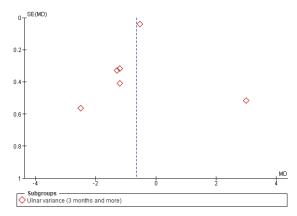




2.3.4 DASH scores at 12 months



2.3.2 Radial inclination



2.3.3 Ulnar variance

Study	Eligibility criteria and source	Randon allocation	Concealed allocation	Groups similar at baseline	Participant blinding	Surgeon blinding	Assessor blinding	<15% dropouts	Intention to treat analysis	Between group difference reported	Point estimate and variability reported	Total (0 to 11)
Arora et al, 2011	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	7/10
Bartl et al, 2014	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	6/10
Kapoor et al, 2000	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	4/10
Martinez- Mendez et al, 2018	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	7/10
Mulders et al, 2019	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	7/10
Saving et al, 2019	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	6/10
Sharma et al, 2014	Yes	No	No	Yes	No	No	No	Yes	No	Yes	Yes	4/10
Sirnio et al, 2019	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	7/10

2.3 PEDro criteria and scores for included studies

Appendix 3 – Forest plots for clinical outcomes

3.1 Forest plot for grip strength¹

	Su	rgical	gical Non-surgical Mean Difference		Mean Difference	Mean Difference			
Study or Subgroup	Mean [kgs]	SD [kgs]	Total	Mean [kgs]	SD [kgs]	Total	Weight	IV, Random, 95% CI [kgs]	IV, Random, 95% CI [kgs]
1.14.1 3 months									
Arora, 2011	-15.7	6.2	36	-12.5	4.4	37	44.1%	-3.20 [-5.67, -0.73]	e
Saving, 2019	0	0	0	0	0	0		Not estimable	
Sirnio, 2019	-21	5	38	-18	5	42	55.9%	-3.00 [-5.19, -0.81]	_
Subtotal (95% CI)			74			79	100.0%	-3.09 [-4.73, -1.45]	
Heterogeneity: Tau ² =	= 0.00; Chi = 0	.01, df = 1	(P = 0.9)	91); I² = 0%					
Test for overall effect:	Z = 3.69 (P =	0.0002)							
1.14.2 12 months									
Arora, 2011	-22.2	6.3	36	-18.8	5.8	37	43.4%	-3.40 [-6.18, -0.62]	B
Saving, 2019	0	0	0	0	0	0		Not estimable	
Sirnio, 2019	-26	5	38	-25	5	42	56.6%	-1.00 [-3.19, 1.19]	
Subtotal (95% CI)			74			79	100.0%	-2.04 [-4.37, 0.29]	
Heterogeneity: Tau ² =	= 1.25; Chi ² = 1	.76, df = 1	(P = 0.1)	18); I² = 43%					
Test for overall effect:	Z = 1.72 (P = 1	0.09)							
									-4 -2 0 2 4
									Favours surgery Favours closed reduction
Test for subgroup diff	ferences: Chi²	= 0.52, df=	= 1 (P =	0.47), I ² = 0%					

¹ All grip strength outcomes have been converted from positive values to negative values in order to accurately indicate the direction of favorability on this forest plot.

3.2 Forest plots for ROM (absolute) outcomes. Continued over page

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http://dx.doi.org/10.2106/JBJS.RVW.20.00022

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.15.1 Extension 3 months	grooel SD	l [dogroos]	Total Moa	Non-surgical		Total	Weight	Mean Difference	Mean Difference
	31003J SD	[ge91692]	.ordi Mea	[dograos] SD [de	ਤਾਰਫ2]	rudi	maight	IV, Random, 95% CI [degrees]	IV, Random, 95% CI [degrees]
rora, 2011	-51	13	36	-52	9	37	23.8%	1.00 [-4.14, 6.14]	
artl, 2014	11.9	13.7	71	18.2	13	82	26.5%	-6.30 [-10.55, -2.05]	
aving, 2019	-57	15	56	-46	15	63	23.0%	-11.00 [-16.40, -5.60]	_
rnio, 2019	-62	8	38	-56	11	42	26.7%	-6.00 [-10.19, -1.81]	
ubtotal (95% CI)			201			224	100.0%	-5.57 [-9.93, -1.20]	
eterogeneity: $Tau^2 = 13.98$; Chi ² est for overall effect: Z = 2.50 (P		: 3 (P = 0.02); l² = 71%						
5.2 Extension 12 months									
ora, 2011	-59	10	36	-61	7	37	19.6%	2.00 [-1.97, 5.97]	
arti, 2014	-7.5	11.7	68	-7.5	10	81	24.7%	0.00 [-3.53, 3.53]	
aving, 2019	-55	11	56	-56	12	63	18.1%	1.00 [-3.13, 5.13]	
rnio, 2019 ubtotal (95% CI)	-68	6	38 198	-66	7	42	37.6% 100.0%	-2.00 [-4.85, 0.85] -0.18 [-1.95, 1.59]	
eterogeneity: Tau ² = 0.05; Chi ² = est for overall effect: Z = 0.20 (P		(P = 0.38); I				225	100.078	-0.10 [-1.30, 1.33]	Ť
15.3 Flexion 3 months	,								
rora 2011	-47	12	36	-49	11	37	25.2%	2.00 [-3.28, 7.28]	
artl, 2014	13.3	18.1	71	22.5	16.5	82	23.2%	-9.20 [-14.72, -3.68]	
aving, 2019	-57	15	56	-46	15	63	24.9%	-11.00 [-16.40, -5.60]	_
rnio, 2019	-58	12	38	-51	12	42	25.2%	-7.00 [-12.27, -1.73]	
ubtotal (95% CI)	00		201	0.			100.0%	-6.27 [-11.97, -0.58]	
eterogeneity: $Tau^2 = 26.25$; Chi ² est for overall effect: Z = 2.16 (P		3 (P = 0.00	4); l² = 78%						-
15.4 Flexion 12 months									
ora, 2011	-55	11	36	-57	10	37	24.1%	2.00 [-2.83, 6.83]	
arti, 2014	-55 8.2	11.9	68	-57	12.8	37 81	24.1% 25.9%	-3.30 [-7.27, 0.67]	[_]
aving, 2019	-63	13	56	-51	12.0	63	23.9%	-12.00 [-16.85, -7.15]	_
rnio, 2019	-66	7	38	-61	11	42	24.1%	-5.00 [-9.00, -1.00]	
ubtotal (95% CI)			198				100.0%	-4.56 [-9.71, 0.60]	
eterogeneity: $Tau^2 = 22.55$; Chi ² est for overall effect: Z = 1.73 (P		3 (P = 0.00	09); l ² = 82°	%					
15.5 Supination 3 months									
rora, 2011	-80	14	36	-80	12	37	21.9%	0.00 [-5.99, 5.99]	_
artl, 2014	-80	14.3	71	9.7	15.1	82	36.2%	-1.70 [-6.36, 2.96]	
aving, 2019	-95	14.3	56	-90	17	63	23.8%	-5.00 [-10.75, 0.75]	_
rnio, 2019	-78	13	38	-73	17	42	18.1%	-5.00 [-11.60, 1.60]	_
ubtotal (95% CI)			201				100.0%	-2.71 [-5.51, 0.10]	
eterogeneity: Tau ² = 0.00; Chi ² = est for overall effect: Z = 1.89 (P		(P = 0.56); I	² = 0%						
15.6 Supination 12 months									
rora, 2011	-85	8	36	-85	8	37	20.4%	0.00 [-3.67, 3.67]	
artl, 2014	2.5	5.9	68	3.2	8.3	81	52.4%	-0.70 [-2.99, 1.59]	
aving, 2019	-96	16	56	-92	17	63	7.8%	-4.00 [-9.93, 1.93]	
rnio, 2019	-85	7	38	-83	10	42	19.5%	-2.00 [-5.75, 1.75]	— - +
ubtotal (95% CI)			198			223	100.0%	-1.07 [-2.72, 0.59]	-
esterogeneity: Tau ² = 0.00; Chi ² = est for overall effect: Z = 1.26 (P		(P = 0.66); I	² = 0%						
15.7 Pronation 3 months									
			00	<i>c</i> ·		~-	40	0.000	
rora, 2011	-81	13	36	-81	12	37	13.6%	0.00 [-5.74, 5.74]	
artl, 2014 aving, 2019	6.5	10.4	71 56	10.2	15.7	82	25.7%	-3.70 [-7.87, 0.47]	
aving, 2019 irnio, 2019	-86 -83	8	56 38	-82 -83	11 12	63 42	38.0% 22.8%	-4.00 [-7.43, -0.57] 0.00 [-4.43, 4.43]	
ubtotal (95% CI)		5	201	50			100.0%	-2.47 [-4.59, -0.35]	◆
	= 3.00. df = 3	(P = 0.39); I	² = 0%						
eterogeneity: Tau ² = 0.00; Chi ² =									
eterogeneity: Tau ² = 0.00; Chi ² = est for overall effect: Z = 2.29 (P									
est for overall effect: Z = 2.29 (P 15.8 Pronation 12 months	= 0.02)								
est for overall effect: Z = 2.29 (P 15.8 Pronation 12 months rora, 2011	-84	7	36	-85	8	37	18.6%	1.00 [-2.45, 4.45]	_ _
est for overall effect: Z = 2.29 (P 15.8 Pronation 12 months rora, 2011 arti, 2014	= 0.02) -84 2.8	5.6	68	2.6	9.4	81	37.1%	0.20 [-2.24, 2.64]	
est for overall effect: Z = 2.29 (P 15.8 Pronation 12 months rora, 2011 artl, 2014 aving, 2019	= 0.02) -84 2.8 -85	5.6 9	68 56	2.6 -83	9.4 10	81 63	37.1% 19.0%	0.20 [-2.24, 2.64] -2.00 [-5.41, 1.41]	
est for overall effect: Z = 2.29 (P 15.8 Pronation 12 months rora, 2011 artl, 2014 aving, 2019 rrio, 2019	= 0.02) -84 2.8	5.6	68 56 38	2.6	9.4	81 63 42	37.1% 19.0% 25.3%	0.20 [-2.24, 2.64] -2.00 [-5.41, 1.41] 1.00 [-1.96, 3.96]	
Ist for overall effect: Z = 2.29 (P 15.8 Pronation 12 months ora, 2011 urll, 2014 uving, 2019 mio, 2019 ubtotal (95% CI) terogeneity: Tau ² = 0.00; Chi ² =	= 0.02) -84 2.8 -85 -86 = 2.08, df = 3	5.6 9 8	68 56 38 198	2.6 -83	9.4 10	81 63	37.1% 19.0%	0.20 [-2.24, 2.64] -2.00 [-5.41, 1.41]	
sst for overall effect: Z = 2.29 (P 15.8 Pronation 12 months ora, 2011 attl, 2014 aving, 2019 bitotal (95% CI) aterogeneity: Tau ² = 0.00; Chi ² = sst for overall effect: Z = 0.18 (P	= 0.02) -84 2.8 -85 -86 = 2.08, df = 3	5.6 9 8	68 56 38 198	2.6 -83	9.4 10	81 63 42	37.1% 19.0% 25.3%	0.20 [-2.24, 2.64] -2.00 [-5.41, 1.41] 1.00 [-1.96, 3.96]	
sst for overall effect: Z = 2.29 (P 15.8 Pronation 12 months tora, 2011 aving, 2019 mio, 2019 ubtotal (95% CI) eterogeneity: Tau ² = 0.00; Chi ² + est for overall effect: Z = 0.18 (P 15.9 Ulnar Dev 3 months	= 0.02) -84 2.8 -85 -86 = 2.08, df = 3 = 0.86)	5.6 9 8 (P = 0.56);	68 56 38 198 ¹² = 0%	2.6 -83 -87	9.4 10 5	81 63 42 223	37.1% 19.0% 25.3% 100.0%	0.20 [-2.24, 2.64] -2.00 [-5.41, 1.41] 1.00 [-1.96, 3.96] 0.13 [-1.35, 1.62]	• • •
est for overall effect: Z = 2.29 (P 15.8 Pronation 12 months rora, 2011 arti, 2014 aving, 2019 junica, 2019 junicatal (95% CI) ubtotal (95% CI) ubtotal (95% CI) eterogeneity: Tau ² = 0.00; Ch ² = est for overall effect: Z = 0.18 (P 15.9 Ulnar Dev 3 months rora, 2011	= 0.02) -84 2.8 -85 -86 = 2.08, df = 3	5.6 9 8	68 56 38 198	2.6 -83	9.4 10	81 63 42	37.1% 19.0% 25.3%	0.20 [-2.24, 2.64] -2.00 [-5.41, 1.41] 1.00 [-1.96, 3.96]	• •
sst for overall effect: Z = 2.29 (P 15.8 Pronation 12 months tora, 2011 aving, 2019 mio, 2019 ubtotal (95% CI) tetrogeneity: Tau ² = 0.00; Ch ² = sst for overall effect: Z = 0.18 (P 15.9 Uhar Dev 3 months tora, 2011 art, 2014	-84 2.8 -85 -86 = 2.08, df = 3 = 0.86) -30	5.6 9 8 (P = 0.56); I 10	68 56 38 198 2 = 0% 36	2.6 -83 -87 -28	9.4 10 5	81 63 42 223 37	37.1% 19.0% 25.3% 100.0%	0 20 [-2.24, 2.64] -2.00 [-5.41, 1.41] 1.00 [-1.96, 3.96] 0.13 [-1.35, 1.62] -2.00 [-6.59, 2.59]	• • •
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est for overall effect: $Z = 2.29$ (P 15.8 Pronation 12 months rora, 2011 ati, 2014 aving, 2019 rinoi, 2019 ubtotal (95% CI) eterogeneity: Tau ² = 0.00; Ch ² = est for overall effect: $Z = 0.18$ (P 15.9 Uhar Dev 3 months rora, 2011 ati, 2014 aving, 2019 runoi, 2019 ubtotal (95% CI) eterogeneity: Tau ² = 2.17; Ch ² = est for overall effect: $Z = 2.83$ (P 15.10 Uhar Dev 12 months rora, 2011 ati, 2014 aving, 2019 runoi, 2019 ubtotal (95% CI) eterogeneity: Tau ² = 4.87; Ch ² = est for overall effect: $Z = 2.20$ (P 15.11 Addial Dev 3 months rora, 2011 ati, 2014 aving, 2019 ubtotal (95% CI) eterogeneity: Tau ² = 1.41; Ch ² = est for overall effect: $Z = 0.91$ (P 15.12 Radial Dev 12 months rora, 2011 ati, 2014 aving, 2019 ubtotal (95% CI) eterogeneity: Tau ² = 1.41; Ch ² = est for overall effect: $Z = 0.91$ (P 15.12 Radial Dev 12 months rora, 2011 ati, 2014 aving, 2019 rora, 2011 ati, 2014 aving, 2019	= 0.02) -84 2.8 -86 -86 -2.08, df = 3 = 0.86) -30 5.3 -24 = 5.67, df = 3 = 0.005) -35 4.4 -30 -28 = 0.24, df = 3 = 0.36) -18 5.1 -21 -21 -21 = 0.36) -24 -35 -25 -24 -35 -25 -24 -35 -24 -35 -24 -35 -25 -24 -35 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -24 -35 -25 -28 -9.24, df = 3 = 0.03) -18 -5.1 -21 -35 -21 -21 -35 -22 -21 -21 -21 -35 -21 -21 -21 -21 -21 -21 -21 -21	5.6 8 (P = 0.56); I 100 10.6 7 6 (P = 0.13); I 8 7.5 11 6 (P = 0.15); I 6 6.3	68 56 38 198 2 = 0% 36 71 56 38 201 2 = 47% 36 68 56 38 203 2 = 44% 36 68 56 38 203 2 = 44%	2.6 -83 -87 -28 10.7 -24 -20 -35 5.9 -26 -22 -19 8 -20 -20 -20 -20 -25 3	9.4 10 5 10 8.9 6 7 7 8.8 8.8 6 9 6 9 9 7 7,5.7	81 63 42 223 37 82 63 42 224 37 81 63 42 223 37 82 63 42 223 37 82 63 42 224	37.1% 19.0% 25.3% 100.0% 15.3% 24.9% 32.4% 22.7% 100.0% 21.8% 22.7% 100.0% 10.6% 29.5% 33.5% 29.5% 33.5% 29.5% 33.5% 20.0% 10.0%	0.20 [-2.24, 2.64] -2.00 [-5.11, 1.41] 1.00 [-1.96, 3.96] 0.13 [-1.35, 1.62] -2.00 [-6.59, 2.59] -5.40 [-6.53, -2.27] -1.00 [-3.36, 1.36] -4.00 [-6.85, -1.15] -3.07 [-5.19, -0.95] -1.50 [-3.99, 0.99] -4.00 [-7.49, -0.51] -6.00 [-8.63, -3.37] -2.97 [-5.62, -0.32] 1.00 [-2.67, 4.67] -2.90 [-5.18, -0.62] -1.00 [-2.99, 0.98] 1.00 [-2.59, 0.95] -0.82 [-2.59, 0.95]	
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st for overall effect: $Z = 2.29$ (P 15.8 Pronation 12 months ora, 2011 rd, 2014 viring, 2019 rio, 2019 st for overall effect: $Z = 0.00$; ChiP = st for overall effect: $Z = 0.01$; ChiP = st for overall effect: $Z = 0.01$; ChiP = st for overall effect: $Z = 0.01$; ChiP = st for overall effect: $Z = 0.01$; ChiP = st for overall effect: $Z = 2.83$ (P 15.9 Uhar Dev 3 months ora, 2011 rd, 2014 viring, 2019 rio, 2019 15.10 Uhar Dev 12 months ora, 2011 rd, 2014 viring, 2019 rio, 2019 15.11 Radial Dev 3 months ora, 2011 rd, 2014 viring, 2019 rio, 2019 15.11 Radial Dev 3 months ora, 2011 rd, 2014 viring, 2019 rio, 2019 15.12 Radial Dev 12 months ora, 2011 rd, 2014 viring, 2019 rio, 2019 15.12 Radial Dev 12 months ora, 2011 rd, 2014 viring, 2019 rio, 2019 15.12 Radial Dev 12 months ora, 2011 rd, 2014 viring, 2019 rio, 2	= 0.02) -84 2.8 -86 -86 = 0.08() -30 5.3 -25 -24 = 0.005) -35 -25 -24 = 0.005) -35 -36 4.4 -30 -28 = 0.03) -18 5.1 -21 -19 = 5.36, df = 3 = 0.03) -35 -25 -24 -30 -35 -35 -35 -36 -30 -36 -37 -37 -36 -37 -37 -37 -37 -37 -37 -36 -37 -37 -37 -37 -37 -37 -37 -37	$\begin{array}{c} 5.6\\ 9\\ 8\\ (P=0.56); \\ 10\\ 10.6\\ 7\\ 6\\ (P=0.13); \\ 11\\ 6\\ (P=0.13); \\ 11\\ 6\\ (P=0.03); \\ 12\\ 8\\ 7.5\\ 5\\ 5\\ 5\\ 6\\ 6\\ .3\\ 5\\ 5\\ 6\\ .3\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\ 5\\$	68 56 38 198 2 = 0% 36 71 56 38 201 2 = 47% 36 68 56 38 198 2 = 68% 36 73 56 38 203 2 = 44% 36 56 56 38 198	2.6 -83 -87 -28 10.7 -24 -20 -35 5.9 -26 -22 -22 -20 -20 -20 -23	9.4 100 5 6 7 8 8 8 8 8 8 8 8 8 6 9 9 7 5.7 7 7 7	81 63 42 223 37 82 63 42 224 37 81 63 42 223 37 82 63 42 223 37 82 63 42 224	37.1% 19.0% 25.3% 100.0% 15.3% 24.9% 32.4% 22.7% 100.0% 21.8% 22.7% 100.0% 10.6% 29.5% 33.5% 29.5% 33.5% 29.5% 33.5% 20.0% 10.0%	0.20 [-2.24, 2.64] -2.00 [-5.11, 1.41] 1.00 [-1.96, 3.96] 0.13 [-1.35, 1.62] -2.00 [-6.59, 2.59] -5.40 [-6.53, -2.27] -1.00 [-3.36, 1.36] -4.00 [-6.85, -1.15] -3.07 [-5.19, -0.95] -1.50 [-3.99, 0.99] -4.00 [-7.49, -0.51] -6.00 [-8.63, -3.37] -2.97 [-5.62, -0.32] 1.00 [-2.67, 4.67] -2.90 [-5.18, -0.62] -1.00 [-2.99, 0.98] 1.00 [-2.59, 0.95] -0.82 [-2.59, 0.95]	

3.3. Forest plot for complications

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VOLAR LOCKING PLATE FIXATION VERSUS CLOSED REDUCTION FOR DISTAL RADIAL FRACTURES IN ADULTS. A SYSTEMATIC REVIEW AND META-ANALYSIS

http://dx.doi.org/10.2106/JBJS.RVW.20.00022

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Study or Subgroup		Non-surg tal Events	Total	Weight	Risk Difference M-H, Random, 95% Cl	Risk Difference M-H, Random, 95% Cl
1.12.1 Malunion/ loss of r					b 1 - 4 41 1- 1	
Arora, 2011 Bartl, 2014	0 4	0 0 84 39	0 90	20.6%	Not estimable -0.39 [-0.50, -0.27]	
3ani, 2014 Kapoor, 2000	4	84 39 0 0	90	20.6%		
		50 10		20.20	Not estimable	
Martinez-Mendez, 2018 Saving, 2019	1 0	50 10 56 5	47 63	20.2% 21.8%	-0.19 [-0.32, -0.07] -0.08 [-0.15, -0.01]	
iharma, 2014	0	32 12	32	18.3%	-0.38 [-0.55, -0.20]	
Sirnio, 2019	0	33 17	42	19.1%	-0.40 [-0.56, -0.25]	
ubtotal (95% CI)		255		100.0%	-0.28 [-0.45, -0.12]	
otal events	5	83				
leterogeneity: Tau ² = 0.0 est for overall effect: Z =			0.0000	1); I≊ = 909	6	
.12.2 Tendonitis/ tendor			у			
rora, 2011	10	36 0	37	7.0%	0.28 [0.13, 0.43]	
larti, 2014	1	84 2	90	20.9%	-0.01 [-0.05, 0.03]	
1artinez-Mendez, 2018	1	50 0	47	18.3%	0.02 [-0.03, 0.07]	- -
lulders, 2019	5	46 5	40	8.0%	-0.02 [-0.15, 0.12]	
aving, 2019	1	56 0	63	19.6%	0.02 [-0.03, 0.06]	
harma, 2014		32 0	32	11.7%	0.06 [-0.04, 0.16]	
irnio, 2019		33 0	35	14.4%	0.03 [-0.05, 0.11]	
ubtotal (95% CI)		37	344	100.0%	0.03 [-0.01, 0.08]	
otal events leterogeneity: Tau ^z = 0.01			0.005);	I² = 68%		
est for overall effect: Z =		5)				
.12.3 Carpal tunnel sync		26 0	22	16.004	0.021.0.05.0.403	
rora, 2011	1	36 0 84 2	37	16.0% 27.4%	0.03 [-0.05, 0.10]	
arti, 2014 'anoor, 2000	1	84 2 29 1	90 33	27.4%	-0.01 [-0.05, 0.03] -0.03 [-0.11, 0.05]	
lapoor, 2000 Iulders, 2019	0	29 1 46 3	33 40	13.8%	-0.03 [-0.11, 0.05] -0.07 [-0.17, 0.02]	
aving, 2019	2	40 3 56 5	40 63	12.3%	-0.04 [-0.13, 0.04]	
harma, 2014	1	32 7	32	5.3%	-0.19 [-0.34, -0.03]	
irnio, 2019	1	33 2	35	11.3%	-0.03 [-0.12, 0.07]	_
ubtotal (95% CI)		16	330	100.0%	-0.03 [-0.07, 0.01]	•
otal events	6	20				-
leterogeneity: Tau² = 0.0 est for overall effect: Z =	0; Chi ² = 10.1	17, df = 6 (P =	0.12); P	²= 41%		
.12.4 Complex regional						
rora, 2011		36 5	37	3.1%	-0.08 [-0.21, 0.05]	
larti, 2014		84 1	90	55.1%	-0.01 [-0.04, 0.02]	📫
lartinez-Mendez, 2018	0	50 1	47	17.3%	-0.02 [-0.08, 0.03]	
luiders, 2019	1	46 4	40	5.3%	-0.08 [-0.18, 0.02]	
aving, 2019	0	56 2	63	19.2%	-0.03 [-0.09, 0.02]	
ubtotal (95% CI)	2	272	277	100.0%	-0.02 [-0.05, 0.00]	•
otal events	3	13				
leterogeneity: Tau² = 0.0			.40); I²:	= 2%		
est for overall effect: Z =	1.87 (P = 0.0	16)				
13 E Infection						
.12.5 Infection		26 0	22	12.00	0.001.005.005	<u> </u>
rora, 2011		36 0	37	12.9%	0.00 [-0.05, 0.05]	
3artl, 2014		84 0	90	34.4%	0.01 [-0.02, 0.04]	
(apoor, 2000	1	29 0	33	4.5%	0.03 [-0.05, 0.12]	
fartinez-Mendez, 2018	0	50 0 46 1	47 40	22.4% 4.7%	0.00 [-0.04, 0.04]	
Aulders, 2019	1	40 I 56 O	40 63		0.04 [-0.05, 0.13]	
Saving, 2019 Shormo, 2014		32 0	32	15.9%	0.02 [-0.03, 0.06]	
Sharma, 2014 Subtotal (95% CI)		32 0	342	5.1% 100.0%	0.03 [-0.05, 0.11] 0.01 [-0.01, 0.03]	L
otal events	7	1			0.01[-0.01, 0.03]	ľ
leterogeneity: Tau² = 0.0 est for overall effect: Z =			.94); I*:	= 0%		
.12.6 Nerve lesion	_					_
larti, 2014		84 3	90	46.3%	-0.03 [-0.08, 0.01]	
fartinez-Mendez, 2018		50 0	47	37.9%	0.02 [-0.03, 0.07]	
Saving, 2019		56 5	63	15.8%	0.05 [-0.06, 0.15]	
ubtotal (95% CI)		90	200	100.0%	-0.00 [-0.05, 0.05]	\mathbf{T}
otal events leterogeneity: Tau² = 0.0	8 0; Chi² = 3.8:	8 2,df=2(P=0	.15): I⁼÷	= 48%		
est for overall effect: Z =						
.12.7 Osteoarthritis rora. 2011	16	36 23	37	14.8%	-0.18 [-0.40, 0.05]	
lartinez-Mendez, 2018	4	50 25	47	21.3%	-0.05 [-0.17, 0.07]	_
luiders, 2019	1	46 0	40	24.7%	0.02 [-0.04, 0.08]	_
iharma, 2014	5	32 16	32	15.4%	-0.34 [-0.56, -0.13]	
irnio, 2019		33 1	35	23.8%	0.00 [-0.08, 0.08]	_
ubtotal (95% CI)		97		100.0%	-0.08 [-0.22, 0.05]	
otal events leterogeneity: Tau ^z = 0.0:	27 2; Chi² = 26.0	46 83, df=4 (P ≺	0.0001); I² = 85%		
est for overall effect: Z =				-		
.12.8 Finger stiffness	0	29 4	22	56 5%	-0126024 0.00	
(apoor, 2000 Iharma, 2014	U 1	29 4 32 10	33 32	56.5% 43.5%	-0.12 [-0.24, 0.00] -0.28 [-0.45, -0.11]	
iubtotal (95% CI)		61 IU	65	43.5% 100.0%	-0.28 [-0.45, -0.11] -0.19 [-0.36, -0.03]	
otal events	1	14			[0.00, -0.00]	
leterogeneity: Tau² = 0.0			.11) [,] I ² ·	= 60%		
est for overall effect: Z =						
.12.9 Removal or failure	ofhardwar	e				
(apoor, 2000		29 0	33	16.4%	0.14 [0.00, 0.27]	⊢
luiders, 2019	10	46 2	40	15.9%	0.17 [0.03, 0.30]	—— — —
aving, 2019	4	56 0	63	36.0%	0.07 [-0.00, 0.14]	⊢ ■
harma, 2014	1	32 0	32	31.7%	0.03 [-0.05, 0.11]	
ubtotal (95% CI)		63	168		0.08 [0.02, 0.15]	◆
otal events	19	2				
leterogeneity: Tau ² = 0.01			.21); I²∶	= 34%		
est for overall effect: Z =	z.70 (P = 0.0	IU7)				
						-0.5 -0.25 0 0.25 0.5
est for subgroup differer	res: Chiž – 1	34 70 45-07	2 < 0.00	101) 18 - 74	3 9 %	Favours surgery Favours closed reduction
sector subgroup unlefer		o 7.1 0, ui – 0 (F	· 0.00	S(n) = n		

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Appendix 4 – sensitivity analysis

4.1 Sensitivity analysis restricted to participants aged 60 years and older

Outcome	All ages (MD [CI])	≥ 60 years (MD [CI])
DASH (24 months)	8.9 points (5.8 to 12.1)	8.9 points (95% CI: 4.4 to 13.5)
Palmar tilt (≥3 months)	6.5 degrees (95% CI 2.8 to 10.1)	8.1 degrees (95% CI 3.4 to 12.8)
Radial inclination (≥3 months)	3.4 degrees (2.5 to 4.3)	3.8 degrees (95% CI: 2.5 to 5.1)
Ulnar variance (≥3 months)	0.7 mms (0.2 to 1.5)	0.7 mms (95% Cl: -0.8 to 2.1)