Supplementary Materials

Appendix 1. Search strategy

PubMed
("distal radius fracture" OR "distal radius fractures" OR "distal radial fracture" OR "distal radial fractures" OR "wrist fracture" OR "wrist fractures" OR "wrist-fracture" OR "wrist-fractures" OR "forearm fracture" OR "forearm fractures" OR "forearm-fracture" OR "forearm-fractures") AND (malunion OR mal-union OR malunited OR mal-united OR displaced OR dislocated OR dislocation OR dislocations OR radiological OR radiologic OR radiographic OR radiographical)
Embase
('distal radius fracture'/exp OR 'distal radius fracture' OR 'distal radius fractures' OR 'distal radial fracture'/exp OR 'distal radial fracture' OR 'distal radial fractures' OR 'wrist fracture'/exp OR 'wrist fracture' OR 'wrist fractures' OR 'wrist-fracture'/exp OR 'wrist-fracture' OR 'wrist-fractures' OR 'forearm fracture'/exp OR 'forearm fracture' OR 'forearm fractures' OR 'forearm-fracture'/exp OR 'forearm-fracture' OR 'forearm-fractures') AND ('malunion'/exp OR malunion OR 'mal union' OR malunited OR 'mal united' OR displaced OR dislocated OR 'dislocation'/exp OR dislocation OR 'dislocations'/exp OR dislocations OR radiological OR radiologic OR radiographic OR radiographical) NOT scaphoid NOT metacarpal NOT ('elbow'/exp OR elbow) NOT ('child'/exp OR child)
Cochrane
("distal radius fracture" OR "distal radius fractures" OR "distal radial fracture" OR "distal radial fractures" OR "wrist fracture" OR "wrist fractures" OR "wrist-fracture" OR "wrist-fractures" OR "forearm fracture" OR "forearm fractures" OR "forearm-fracture" OR "forearm-fractures") AND (malunion OR mal-union OR malunited OR mal-united OR displaced OR dislocated OR dislocation OR dislocations OR radiological OR radiologic OR radiographic OR radiographical)

Supplementary Table 1. QUIPS tool for risk of bias assessment

The six main domains[a] and their subitems	**Comments**
1. Study participation	
a. Adequate participation in the study by eligible persons	The participation should be at least 67% to be judged as adequate. This item judged to have high impact on risk of bias. If no adequate participation of eligible persons, then a study judged to have high risk of bias regarding the domain study participation (1).
b. Description of the source population or population of interest	
c. Description of the baseline study sample	
d. Adequate description of the sampling frame and recruitment	
e. Adequate description of the period and place of recruitment	
f. Adequate description of inclusion and exclusion criteria	
2. Study attrition	
a. Adequate response rate for study participants	The response rate should be at least 67% to be judged as adequate. If no adequate response rate for study participants, then the risk of bias due to study attrition was judged to be high (1).
b. Description of attempts to collect information on participants who dropped out	
c. Reasons for loss to follow-up are provided	
d. Adequate description of participants lost to follow-up	
e. There are no important differences between participants who completed the study and those who did not	
3. Prognostic Factor (PF) Measurement	
a. A clear definition or description of the PF is provided	
b. Method of PF measurement is adequately valid and reliable	
c. Continuous variables are reported or appropriate cut points are used	
d. The method and setting of measurement of PF is the same for all study participants	
e. Adequate proportion of the study sample has complete data for the PF	
f. Appropriate methods of imputation are used for missing PF data	
4. Outcome Measurement	
a. A clear definition of the outcome is provided	
b. Method of outcome measurement is adequately valid and reliable	
c. The method and setting of outcome measurement is the same for all study participants	
5. Study Confounding	
a. All important confounders are measured	
b. Clear definitions of the important confounders	

measured are provided	
c. Measurement of all important confounders is adequately valid and reliable	
d. The method and setting of confounding measurement are the same for all study participants	
e. Appropriate methods are used if imputation is used for missing confounder data	
f. Important potential confounders are accounted for in the study design	
g. Important potential confounders are accounted for in the analysis	
6. Statistical Analysis and Reporting	
a. Sufficient presentation of data to assess the adequacy of the analytic strategy	
b. Strategy for model building is appropriate and is based on a conceptual framework or model	
c. The selected statistical model is adequate for the design of the study	
d. There is no selective reporting of results	

[a] For each domain the risk of bias (RoB) can be classified as low, moderate, or high: a study with low RoB in all six domains, or low RoB in five and moderate in one domain is classified as having low RoB; a study with high RoB in at least one domain or moderate RoB in three or more domains is classified as high RoB; all other combinations are classified as moderate RoB (1).

Supplementary Table 2. Risk of bias assessment of the five excluded studies[a]

Author / publication year	Study participation	Study attrition	Prognostic factor measurement	Outcome measurement	Study confounding	Statistical analysis and reporting	Overall risk of bias
Finsen et al. 2013 (2)	High[b]	Moderate[c]	Low	Low	Low	Low	High
Kodama et al. 2014 (3)	High[b]	Low	Low	Low	Moderate[f]	Low	High
Larouche et al. 2014 (4)	High[b]	Low	Low	Low	Low	Low	High
Quadlbauer et al. 2020 (5)	High[b]	Low	Low	Low	Low	Moderate[g]	High
Chung et al. 2021 (6)	High[b]	High[d]	Low	Low	Low	Low	High
Hosokawa et al. 2023 (7)	High[b]	High[d]	Moderate[e]	Low	Moderate[f]	Low	High

[a] For each domain the risk of bias (RoB) can be classified as low, moderate, or high: a study with low RoB in all six domains, or low RoB in five and moderate in one domain is classified as having low RoB; a study with high RoB in at least one domain or moderate RoB in three or more domains is classified as high RoB; all other combinations are classified as moderate RoB.

[b] Inadequate participation in the study by eligible persons.

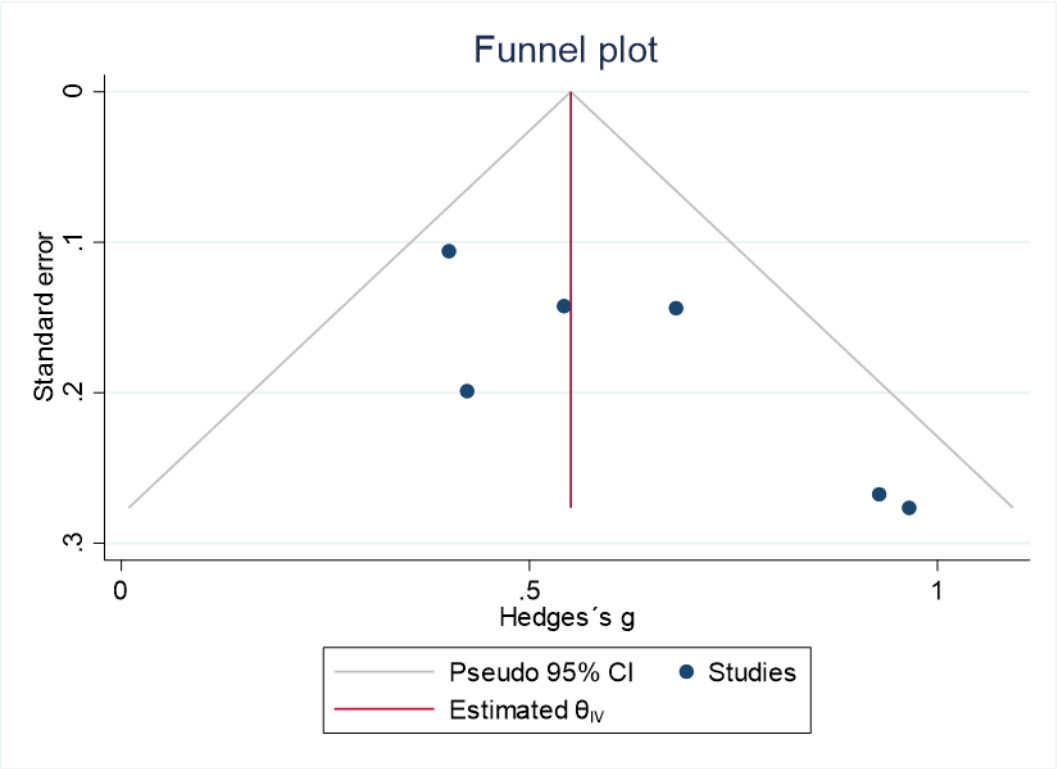
[c] Inadequate description of participants lost to follow-up and inadequate description of attempts to collect information on participants who dropped out.

[d] Inadequate response rate for study participants.

[e] Inadequate proportion of the study sample has complete data for the prognostic factor (malunion).

[f] Confounders were not accounted for in the study design or analysis.

[g] Insufficient presentation of data to assess the adequacy of the analytic strategy.



Supplementary Figure 1. Funnel plot of the publication bias.

References

1. **Grooten WJA, Tseli E, Äng BO, Boersma K, Stålnacke BM, Gerdle B, et al.** Elaborating on the assessment of the risk of bias in prognostic studies in pain rehabilitation using QUIPS-aspects of interrater agreement. *Diagn Progn Res* 2019; 3:5.

2. **Finsen V, Rod O, Rød K, Rajabi B, Alm-Paulsen PS, Russwurm H.** The relationship between displacement and clinical outcome after distal radius (Colles') fracture. *J Hand Surg Eur Vol* 2013; 38:116-126.

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6. **Chung KC, Kim HM, Malay S, Shauver MJ.** Comparison of 24-Month Outcomes After Treatment for Distal Radius Fracture: The WRIST Randomized Clinical Trial. *JAMA Netw Open* 2021; 4:e2112710.

7. **Hosokawa T, Tajika T, Suto M, Chikuda H.** Relationship Between Malunion and Short-Term Outcomes of Nonsurgical Treatment of Distal Radius Fractures in the Elderly: Differences Between Early- and Late-Geriatric Patients. *J Hand Surg Am* 2023; S0363-5023(23)00001-1.