

Study	Bias arising from the randomization process	Bias due to intended interventions	Bias due to measurement of outcome data	Bias due to missing outcome data	Bias in selection of the reported result	Overall risk of bias
Choi 2017 (RCT)	+	+	+	+	+	Low
Shui 2018 (RCT)	-	+	?	+	?	High

Judgment	
-	High
?	Some concerns
+	Low

Study	Pre-intervention		At intervention	Post-intervention				Overall risk of bias
	Bias due to confounding	Bias in selection of participants into the study	Bias in classification of interventions	Bias due to deviations from intended interventions	Bias due to missing data	Bias in measurement of outcomes	Bias in selection of the reported result	
Muroi 2008 (NRS)	Serious	Serious	Moderate	Moderate	Low	Moderate	Low	Serious
Neuman 2008 (NRS)	Serious	Serious	Serious	Moderate	Low	Moderate	Low	Serious
Anei 2010 (NRS)	Serious	Serious	Low	Moderate	Low	Moderate	Low	Serious
Karnatovskia 2014 (NRS)	Serious	Serious	Low	Moderate	Moderate	Moderate	Low	Serious
Kuramatsu 2015 (NRS)	Moderate	Moderate	Low	Low	Low	Moderate	Low	Moderate
Rhim 2022 (NRS)	Serious	Serious	Low	Low	Low	Moderate	Low	Serious
Won 2022 (NRS)	Serious	Serious	Low	Low	Low	Moderate	Low	Serious

Judgment	
	Serious
	Moderate
	Low

Supplementary Fig. 1. Risk of bias assessment was conducted using The Cochrane Collaboration’s tool and the Risk of Bias in randomized controlled trials (RCTs) and the assessment of bias in non-randomized studies was conducted using the Risk of Bias in Non-Randomized Studies of Interventions (ROBINS-I) tool for nine studies included in the meta-analysis. NRS: non-randomized study.