

Supplementary data 1. The searching strategies and the searching results for EMABSE

EMBASE 20180729

Search	Query	Items found
#1	'uremia'/exp OR ur?emi\$	31,450
#2	'kidney failure'/exp OR 'chronic kidney failure'/exp	358,969
#3	'hemodialysis'/exp OR 'peritoneal dialysis'/exp OR 'continuous ambulatory peritoneal dialysis'/exp OR 'dialysis'/exp	174,842
#4	hemodialysis OR hemodialysis OR 'peritoneal dialysis' OR 'continuous ambulatory peritoneal dialysis' OR capd OR dialysis	264,678
#5	renal AND failure OR (kidney AND failure) OR ckf OR crf OR eskd OR esrd OR eskf OR esrf	433,651
#6	#1 OR #2 OR #3 OR #4 OR #5	613,492
#7	'physical activity, capacity' AND 'performance'/exp OR 'exercise test'/exp OR 'kinesiotherapy'/exp OR 'resistance training'/exp	153,953
#8	exercise OR 'resistance training' OR (resistance AND program\$) OR (physical AND fitness) OR (physical AND rehabilitation) OR (strength\$ AND muscle) OR (strength\$ AND program\$) OR (strength\$ AND training)	735,184
#9	#7 OR #8	758,804
#10	'muscle mass'/exp OR 'muscle function'/exp OR 'muscle strength'/exp OR 'sarcopenia'/exp	92,764
#11	'muscle mass' OR 'fat free mass' OR 'lean body weight' OR 'muscle function' OR 'appendicular lean mass' OR 'hand grip strength' OR 'gait speed' OR (musle AND wast*) OR sarcopenia	409,900
#12	#10 OR #11	443,709
#13	'crossover procedure'/exp OR 'double blind procedure'/exp OR 'randomized controlled trial'/exp OR 'single blind procedure'/exp	569,182
#14	random* OR factorial* OR crossover* OR placebo*	1,757,230
#15	#13 OR #14	1,774,930

#16	#6 AND #9 AND #12 AND #15	231
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Supplementary data 2. The clinical question depicted in PICOS.

This meta-analysis is aimed to answer the clinical question-whether exercise can improve muscle fitness in patients receiving dialysis and which type of exercise is better. To find the results, we transferred the clinical question into PICOS, which is displayed as follows:

P (population): The participants in the included studies should be adults (age over 18 years old) with a clinical diagnosis of chronic kidney failure, undergoing maintenance dialysis over 3 months;

I (intervention): Only those studies, in which participants in the intervention group finished a regular exercise training for at least 8 weeks, were included because it is known that a proximately 8 to 12 weeks training is needed to strength the muscle[1]. The type of the exercise, whether it is a resistance training, aerobic training or a combination of these two types, was not restricted;

C (comparison): To clarify the effect of regular exercise, studies of which, the control group was “usual care”, “no exercise”, “sham exercise”, “attention control” or “placebo”, were all considered eligible;

O (outcomes): Outcomes representing muscle mass, muscle strength and physical performance were involved;

S (studies): Only randomized controlled trials (RCTs) were included in this meta-analysis.

Supplementary data 3. Risk of bias assessment of the included studies.

Studies	Critical Appraisal Items for RCTs of JBI												
	Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10	Item11	Item12	Item13
Cheema, 2007a*	Y	Y	Y	NA	NA	Y	Y	Y	Y	Y	Y	Y	Y
Cheema, 2007b*	Y	Y	Y	NA	NA	Y	Y	Y	Y	Y	Y	Y	Y
Chen, 2010	UN	Y	Y	NA	NA	N	Y	Y	Y	Y	Y	Y	Y
DePaul,2002	Y	Y	Y	NA	NA	Y	Y	Y	Y	Y	Y	Y	Y
Groussard, 2015	UN	N	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
Johansen2006	Y	Y	Y	NA	NA	Y	Y	Y	N	Y	Y	Y	Y
Kirkman, 2014	Y	Y	Y	NA	NA	Y	UN	Y	N	Y	Y	Y	Y
Koh,2010	Y	Y	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
Koufaki, 2002	Y	N	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
Manfredini2015	Y	Y	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
Marinho, 2016	Y	N	Y	NA	NA	N	UN	Y	N	Y	Y	Y	Y
Matsufuji, 2015	Y	Y	Y	NA	NA	N	UN	Y	N	Y	Y	Y	Y
Pellizzaro, 2012	UN	UN	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
Rosa C, 2018	Y	Y	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y

Song,2012	UN	N	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
Tayebi, 2018	UN	N	Y	NA	NA	N	UN	Y	N	Y	Y	Y	Y
Thompson, 2016	Y	Y	Y	NA	NA	Y	UN	Y	Y	Y	Y	Y	Y
Vilsteren,2005	UN	N	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
Wu, 2014	Y	N	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
#Molsted, 2004	UN	Y	Y	NA	NA	Y	Y	Y	N	Y	Y	Y	Y
#Liao, 2016	UN	N	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y
#Wilund, 2010	UN	N	Y	NA	NA	N	Y	Y	N	Y	Y	Y	Y

Note: Item 1. Was true randomization used for assignment of participants to treatment groups?

Item 2. Was allocation to treatment groups concealed?

Item 3. Were treatment groups similar at the baseline?

Item 4. Were participants blind to treatment assignment?

Item 5. Were those delivering treatment blind to treatment assignment?

Item 6. Were outcomes assessors blind to treatment assignment?

Item 7. Were treatment groups treated identically other than the intervention of interest?

Item 8. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?

Item 9. Were participants analyzed in the groups to which they were randomized?

Item 10. Were outcomes measured in the same way for treatment groups?

Item 11. Were outcomes measured in a reliable way?

Item 12. Was appropriate statistical analysis used?

Item 13. Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?

“Y”=“Yes”; “N”=“No”; “UN”=“Unclear”; “NA”=“Not Applicable”

“*”: these two articles are from the same PEAK study.

“#”: these three articles are only narrated.

Supplementary data 4. The inter-rater reliability of bias assessment.

A. The result of included and excluded studies assessed by the two independent reviewers.

		Reviewer 2			
		Included	Excluded	Unsure	Total
Reviewer 1	Included	14	1	1	16
	Exclude	2	4	0	6
	Unsure	0	0	2	2
	Total	16	5	3	24

B. The calculation procedure of Kappa.

$$P_O = (14+4+2)/24=0.83$$

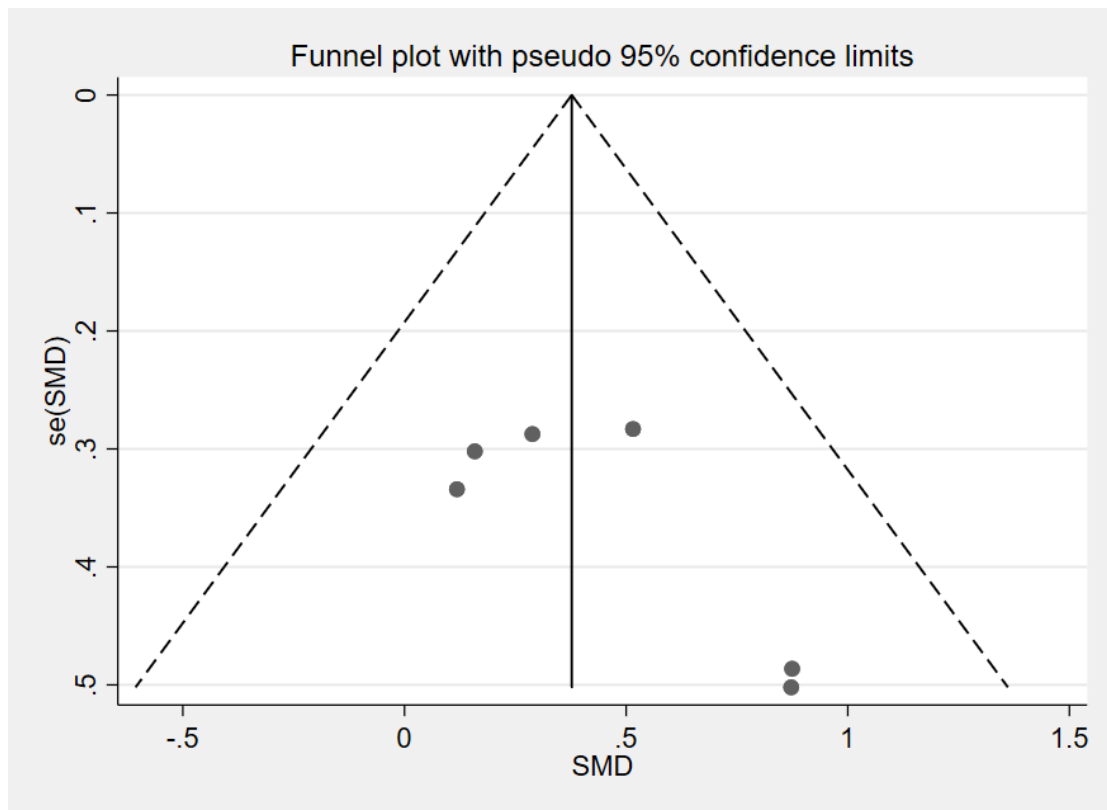
$$P_E = (16*16+6*5+2*3)/24^2= 0.51$$

$$Kappa = (0.83-0.51)/(1-0.51)=0.65$$

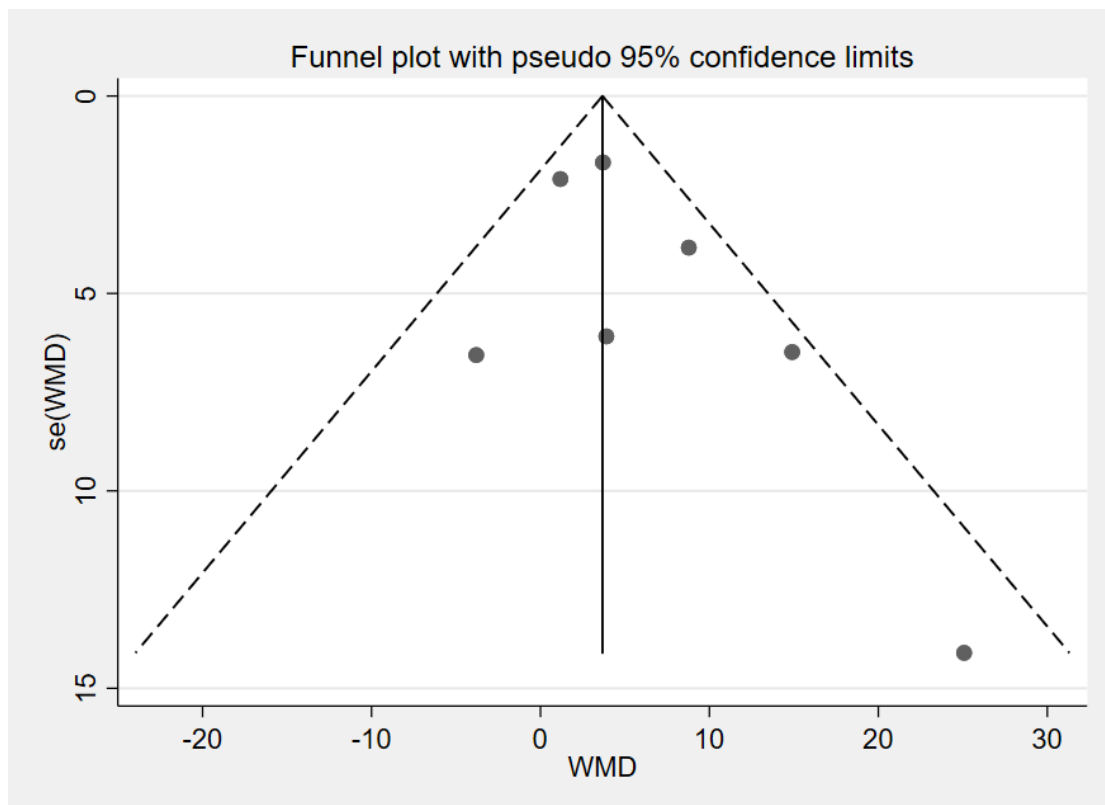
The Kappa was 0.65 which indicated a fair agreement between the two independent reviewers [2]

Supplementary data 5. The funnel plot publication bias.

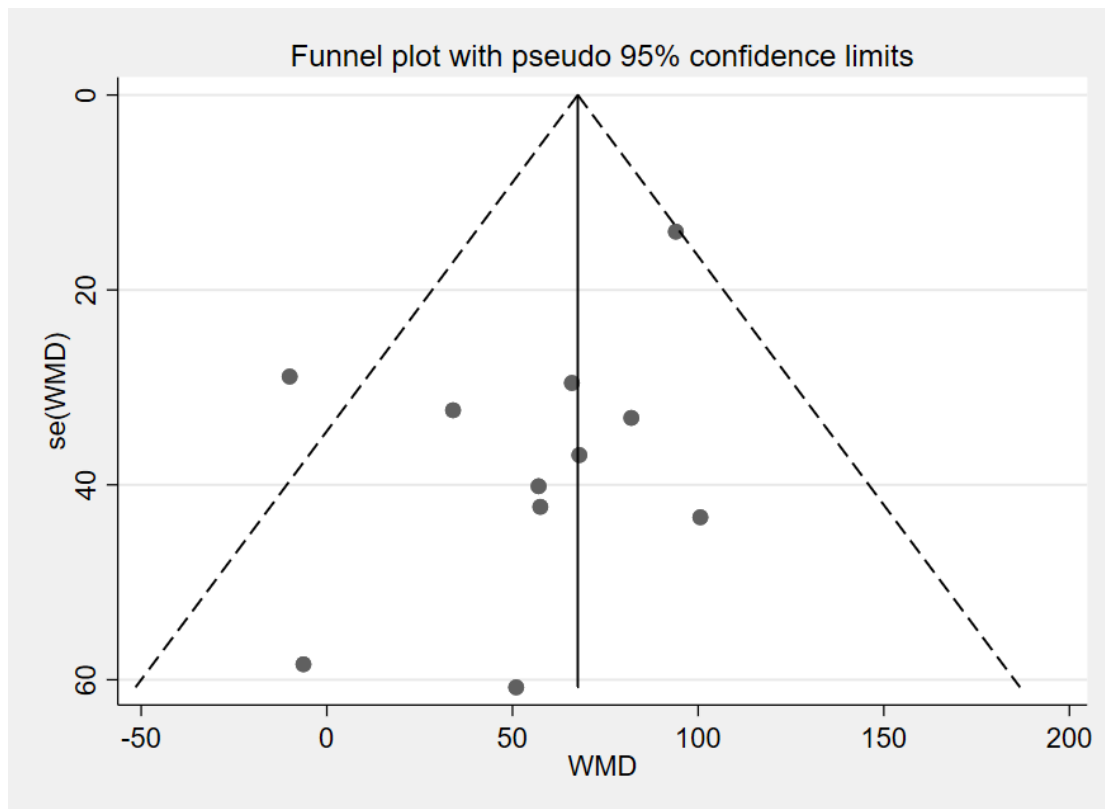
A. The funnel plot of leg mass depicting publication bias.



B. The funnel plot of knee extension strength depicting publication bias



C. The funnel plot of 6-MWT depicting publication bias.



Reference

1. Vaidya, T., A. Chambellan, and C. de Bisschop, *Sit-to-stand tests for COPD: A literature review*. *Respir Med*, 2017. **128**: p. 70-77.
2. library, C. *cochrane-handbook-for-systematic-reviews-of-interventions*. 2011; Available from: <http://handbook-5-1.cochrane.org/>.