

Supplementary Material

Content	Pages
Table S1. Search strategy.	2
Table S2. Basic Information of the Included Studies	3-4
Table S3. Exercise Intervention and Outcome Index of the Included Studies	5-7
Figure S1. Cochrane risk bias evaluation chart.	8
Figure S2-8. Pairwise Meta-Analysis.	9-11
Figure S9-14. Ranking of exercise interventions in order of effectiveness.	12-13
Figure S15-20. Publication Bias or Small Sample Effect Test	14-15

Table S1 Search strategy for Pubmed

	Search strategy
Pubmed	<p> ((((((((Menopausal women[Title/Abstract]) OR (postmenopausal women[Title/Abstract])) OR (postmenopausal female[Title/Abstract])) OR (menopause female[Title/Abstract])) OR (elderly women[Title/Abstract])) OR (older adults[Title/Abstract])) OR (postmenopausal females[Title/Abstract])) AND (((((((cardiovascular[Title/Abstract]) OR (flow-mediated dilation[Title/Abstract])) OR (pulse wave velocity[Title/Abstract])) OR (intima media thickness[Title/Abstract])) OR (vascular function[Title/Abstract])) OR (total cholesterol[Title/Abstract])) OR (triglyceride[Title/Abstract])) AND (((((((Exercise[Title/Abstract]) OR (physical activit*[Title/Abstract])) OR (training*[Title/Abstract])) OR (resistance training[Title/Abstract])) OR (aerobic exercise[Title/Abstract])) OR (combined training[Title/Abstract])) OR (water exercise[Title/Abstract])) AND (((randomized controlled trial[Title/Abstract]) OR (randomized[Title/Abstract])) OR (placebo[Title/Abstract])) </p>

Table S2 Basic Information of the Included Studies

Study	Country	Group	Age (Mean \pm SD)	n
James1991	USA	AE	47 \pm 2 years	11
		RT	47 \pm 2 years	12
Casey2007	USA	AE	59.7 \pm 6.5 years	10
		RT	58.7 \pm 4.5 years	13
Zois2009	Greece	CT	55.0 \pm 5.2 years	10
		CON	59.4 \pm 3.2 years	10
Arturo2011	USA	CT	54 \pm 2years	12
		CON	54 \pm 1 years	12
Masanori2012	Japan	AE	72 \pm 4.2 years	13
		CON	71.5 \pm 7.4 years	13
Nihal2012	Turkey	RT	54.33 \pm 5.3 years	24
		CON	51.80 \pm 3.65 years	21
Asako2012	Japan	AE	60 \pm 6 years	11
		CON	60 \pm 7 years	11
Katie2012	USA	CT1	65.6 \pm 0.7 years	27
		CT2	63.7 \pm 0.5 years	30
		CT3	64.8 \pm 0.7 years	22
Figueroa2012	USA	RT	56 \pm 3 years	15
		CON	56 \pm 3 years	13
Gerage2013	Brazil	RT	65.5 \pm 5.0 years	15
		CON	66.2 \pm 4.1 years	14
Cleiton2014	Brazil	RT1		12
		RT2	59.5 \pm 6.3years	11
		CON		12
Dos2014	Brazil	CT1	64.2 \pm 3.1 years	20
		CT2	62.6 \pm 2.5 years	20
		CON	63.1 \pm 2.3 years	20
Camilla2016	Danmark	AE	53.4 \pm 3 years	38
Nishida2015	Japan	AE	70.4 \pm 5.8 years	31
		CON	69.7 \pm 6.6 years	31
Wong2016	USA	RT	59 \pm 1 years	13
		CON	58 \pm 1 years	12
Azadpour2017	Turkey	AE	57.58 \pm 4.29 years	12
		CON	56.58 \pm 4.17 years	12
Jinkee2017	Japan	CT	73.5 \pm 7.1 years	25
		CON	74.7 \pm 5.1 years	25
Won2017	Korea	CT	76 \pm 5 years	10
		CON	74.7 \pm 2 years	10
Anahita2018	Iran	CT	54.83 \pm 4.72 years	12
		CON	56.9 \pm 4.93 years	12

Alexei2018	Korea	RT	59±1 years	20
		CON	59±1 years	21
Wong2018	Korea	WE	74±4 years	52
		CON	73±4 years	48
Tze2019	Australia	AE	53.9±3.39 years	30
		CON	53.2±3.07 years	30
		AE1	61.8±10.1 years	21
Eun2019	Korea	AE2	57.3±8.4 years	13
		CON	62.5±13.9 years	13
Paolo2019	Brazil	RT	71.40 ± 5.71 years	25
		CON	69.04 ± 4.45 years	23
		RT1		20
Leandro2020	Brazil	RT2	67.3 ± 4.4 years	20
		CON		19
Won2020	Korea	RT	67.4 ± 1.1 years	10
		CON	67.7 ± 1.0 years	10
HuiHe2022	China	AE	58.3 ± 3.0 years	15
		CON	57.6 ± 3.2 years	14
Arca2014	Brazil	WE	64 ± 7.0 years	19
		CON		14
Colado2009	Spain	WE	54.7±2.0 years	15
		RT	54.0±2.8 years	21
		CON	52.9±1.9 years	10
Woo2016	Korea	WE	73.22±3.30 years	25
		CON	72.65±4.28 years	15
Sattar2012	Iran	WE	55.2 ± 3.7 years	14
		CON	54.4 ± 4.6 years	10
Pak2014	China	WE	69.4 ± 7.19 years	13
		CON	74.6 ± 6.52 years	10
Rodrigo2008	Australia	WE	53.1±1.9 years	36
		CON	54.3±2.5 years	22
Takeshima2002	Japan	WE	69.3±4.5 years	15
		CON	69.3±3.3 years	15
		WE	66.77±3.07 years	14
Kim2018	Korea	AE	67.42±1.78 years	14
		CON	66.43±4.45 years	12
Kim2021	Korea	WE	74.36 ± 3.78 years	12
		CON	75.90 ± 4.23 years	10
Arturo2013	USA	RT	54 ±1 years	14
Jeon2018	Korea	CT	59 ±1 years	8
		CON	58 ±2 years	8

Abbreviations: AE, aerobic exercise; RT, resistance training; CT, combined training; WE, water exercise; CON, control group.

Table S3 Exercise Intervention and Outcome Index of the Included Studies

Study	Group	Intervening measure and intensity	Intervention duration (minutes per session, times per week, total weeks)	Outcome Index
James1991	AE	running; 70%HRR	50 min, 3d/w, 12w	TC、TG、LDL-C、HDL-C
	RT	65-70% 1RM	55 min, 3d/w, 12w	
Casey2007	AE	running; 65-80%HRR	40 min, 2d/w, 18w	SBP、DBP
	RT	65-70% 1RM	35 min, 2d/w, 18w	
Zois2009	CT	60% 1RM for RT+70% HRmax for AE	75 min, 2d/w, 16w	TC、TG、LDL-C、HDL-C
	CON	No exercise		
Arturo2011	CT	60% 1RM for RT+60% HRmax for AE	40 min, 3d/w, 12w	SBP、DBP、PWV
	CON	No exercise		
Masanori2012	AE	15RPE	20min, 7d/w, 12w	TC、TG、LDL-C、HDL-C、SBP、DBP、PWV
	CON	No exercise		
Nihal2012	RT	60% 1RM	50min, 3d/w, 12w	TC、TG、LDL-C、HDL-C、SBP、DBP、
	CON	No exercise		
Asako2012	AE	walking/cycling; 70%HRR	45min, 3d/w, 8w	TC、TG、LDL-C、HDL-C、SBP、DBP、
	CON	No exercise		
Katie2012	CT1	80% 1RM for RT+70% HRmax for AE	45min, 1d/w, 16w	SBP、DBP
	CT2		45min, 2d/w, 16w	
	CT3		45min, 3d/w, 16w	
Figueroa2012	RT	80% 1RM	3d/w, 6w	SBP、DBP
	CON	No exercise		
Gerage2013	RT	65% 1RM	30min, 3d/w, 12w	SBP、DBP
	CON	No exercise		
Cleiton2014	RT1	65% 1RM	20min, 3d/w, 12w	TC、LDL-C、HDL-C
	RT2		40min, 3d/w, 12w	
	CON		No exercise	
Dos2014	CT	75% 1RM for RT+65-75% HRmax for AE	50min, 3d/w, 16w	SBP、DBP
	CON	No exercise		
Camilla2016	AE	cycling	60min, 3d/w, 12w	TC、TG、LDL-C、HDL-C、
Nishida2015	AE	stair stepping	20min, 7d/w, 12w	TC、TG、LDL-C、HDL-C、SBP、DBP、
	CON	No exercise		
Wong2016	RT	whole body vibration training	60min, 3d/w, 8w	SBP、DBP
	CON	No exercise		
Azadpour2017	AE	running; 1-2 weeks, 50% HRmax ; 3-4 weeks, 55% HRmax; 5-6 weeks, 60% HRmax; 7-10weeks, 60% HRmax;	40min, 3d/w, 10w	SBP、DBP
	CON	No exercise		
Jinkee2017	CT	walking+elastic bands; 13-17RPE	80min,5d/w, 24w	TC、TG、LDL-C、HDL-C、SBP、DBP
	CON	No exercise		
Won2017	CT	running+RT; 1-4 weeks, 50% HRR ; 5-8weeks, 60% HRR; 9-12 weeks, 70% HRR;	70min,3d/w, 12w	SBP、DBP、PWV
	CON	No exercise		

Anahita2018	CT CON	50-75% 1RM for RT+50-75% HRmax for AE No exercise	90min,3d/w, 8w	TC、TG、LDL-C、 HDL-C、 SBP、DBP
Alexei2018	RT CON	13RPE No exercise	2-4d/w,12w	SBP、DBP、 PWV
Wong2018	WE CON	swimming; 1-5 weeks, 60% HRmax ;6-20 weeks, 70-75% HRmax; No exercise	30min,3-4d/w, 20w	SBP、DBP、 PWV
Tze2019	AE CON	cycling; 13-14 RPE No exercise	30min,3d/w, 8w	TC、TG、LDL-C、 HDL-C、 SBP、DBP、 PWV
Eun2019	AE1 AE2 CON	running; 40-80% HRmax running/walking; 60-80% HRmax No exercise	50min,7d/w,12w	SBP、DBP
Paolo2019	RT CON	65-75% 1RM No exercise	20min,3d/w,12w	TC、TG、LDL-C、 HDL-C、
Leandro2020	RT1 RT2 CON	65-80% 1RM 60-85%1RM No exercise	3d/w,8w	TC、TG、LDL-C、 HDL-C、
Won2020	RT CON	elastic bands; 1-4 weeks, 40-50% 1RM ;5-8 weeks, 50-60%1RM; 9- 12 weeks, 60-70%1RM No exercise	60min,3d/w,12w	SBP、DBP
HuiHe2022	AE CON	running; 40%HRR No exercise	50min,5d/w,12w	TC、TG、LDL-C、 HDL-C、 SBP、DBP
Arca2014	WE CON	walking; 40-50%HRR No exercise	50min,3d/w,12w	TC、TG、LDL-C、 HDL-C、 SBP、DBP
Colado2009	WE RT CON	RT elastic bands No exercise	35-60min,2-3d/w,24w	TC、TG、LDL-C、 HDL-C、 SBP、DBP
Woo2016	WE CON	60-80% HRmax No exercise	50min,3d/w,12w	TC、TG、LDL-C、 HDL-C、 SBP、DBP
Sattar2012	WE CON	RT No exercise	45-60min, 3d/w,8w	SBP
Pak2014	WE CON	Taichi No exercise	60min,3d/w,8w	TG、LDL-C、 HDL-C、 SBP、 DBP
Rodrigo2008	WE CON	RT No exercise	2d/w,12w	TC、TG、LDL-C、 HDL-C
Takeshima2002	WE CON	walking +RT; 60-80% HRmax No exercise	70min,3d/w,12w	TC、TG、LDL-C、 HDL-C、
Kim2018	WE AE CON	1-4weeks 40%-50%HRR;5-8weeks 50%-60% HRR; 9-12weeks 60%- 65% HRR;13-16weeks 65%-70% HRR No exercise	60min,2d/w,16w	PWV
Kim2021	WE CON	1-4weeks 9-10RPE;5-8weeks 11- 12RPE; 9-12weeks 13-14RPE No exercise	60min,3d/w,12w	TC、LDL-C、 HDL-C
Arturo2013	RT	60% 1RM	3d/w,12w	SBP、DBP
Jeon2018	CT CON	walking + RT; 60- 80% HRmax No exercise	60min,3d/w,12w	SBP 、DBP、 TC、TG、PWV

Abbreviations: AE, aerobic exercise; RT, resistance training; CT, combined training; WE, water exercise; CON, control group; HRR, heart rate reserve; HRmax, maximal heart rate; RM, repetition maximum; RPE, Rating of perceived exertion; TC, total cholesterol; TG, triglyceride; LDL-C, low density lipoprotein cholesterol; HDL-C, high density lipoprotein cholesterol; SBP, systolic blood pressure; DBP, diastolic blood pressure; PWV, pulse wave velocity.

Figure S1 Cochrane risk bias evaluation chart.

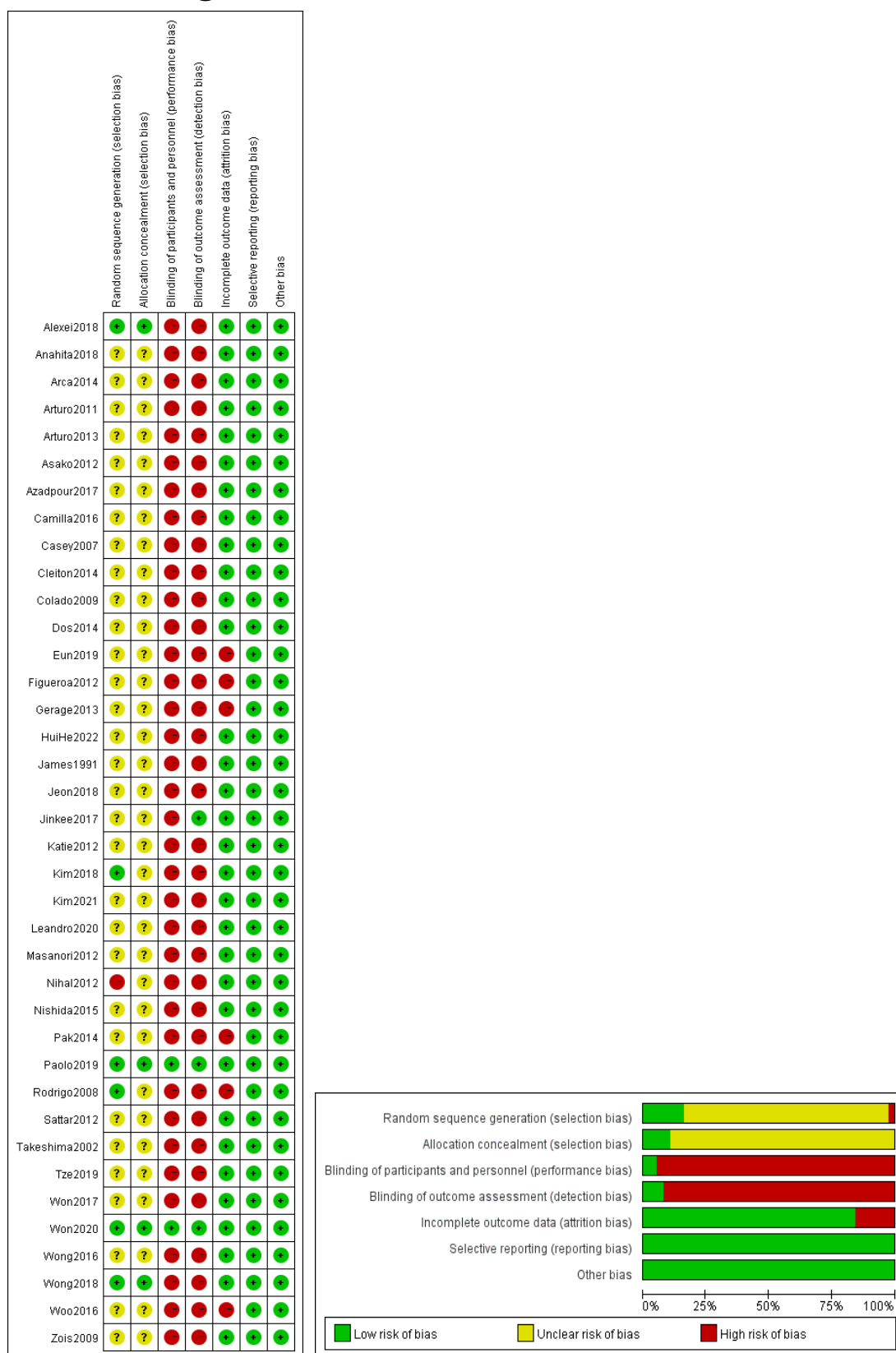


Figure S2 Pairwise Meta-analysis of exercise on PWV

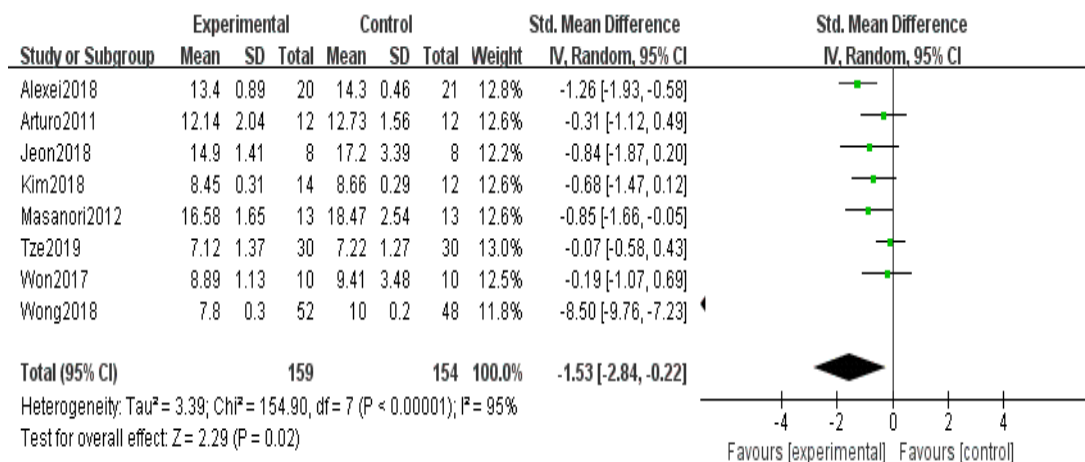


Figure S3 Pairwise Meta-analysis of exercise on SBP

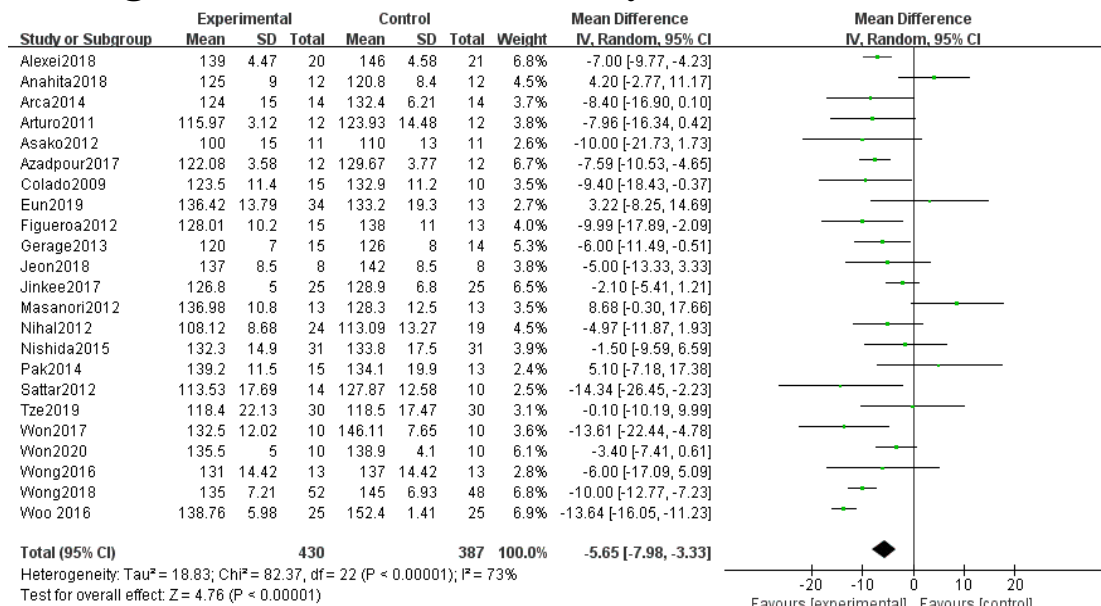


Figure S4 Pairwise Meta-analysis of exercise on DBP

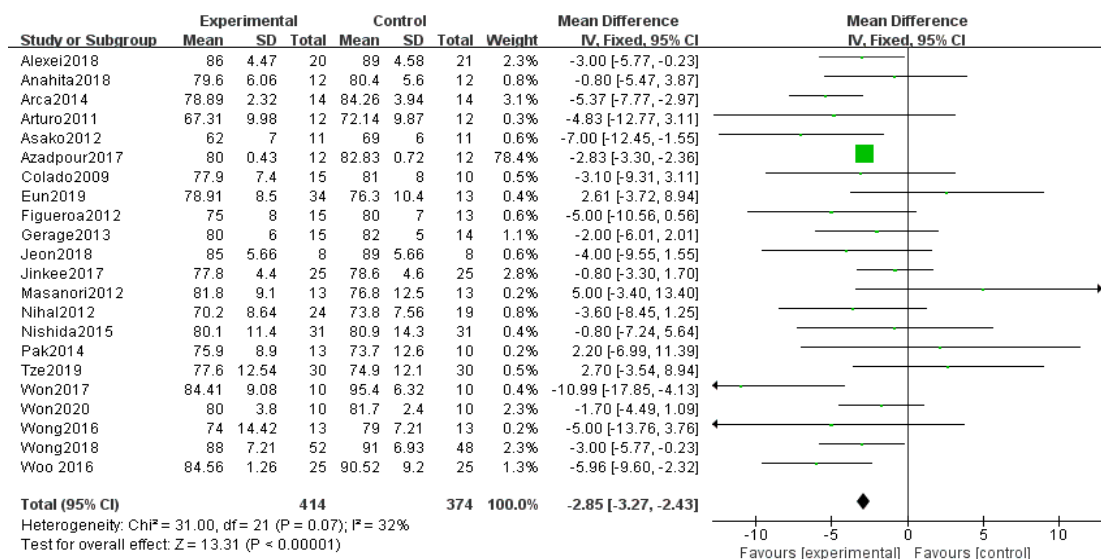


Figure S5 Pairwise Meta-analysis of exercise on TC

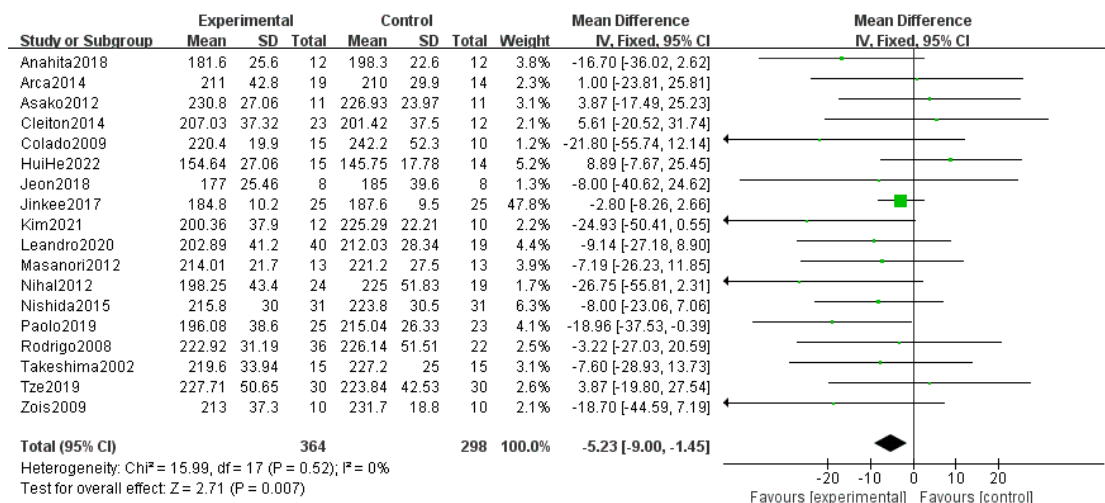


Figure S6 Pairwise Meta-analysis of exercise on TG

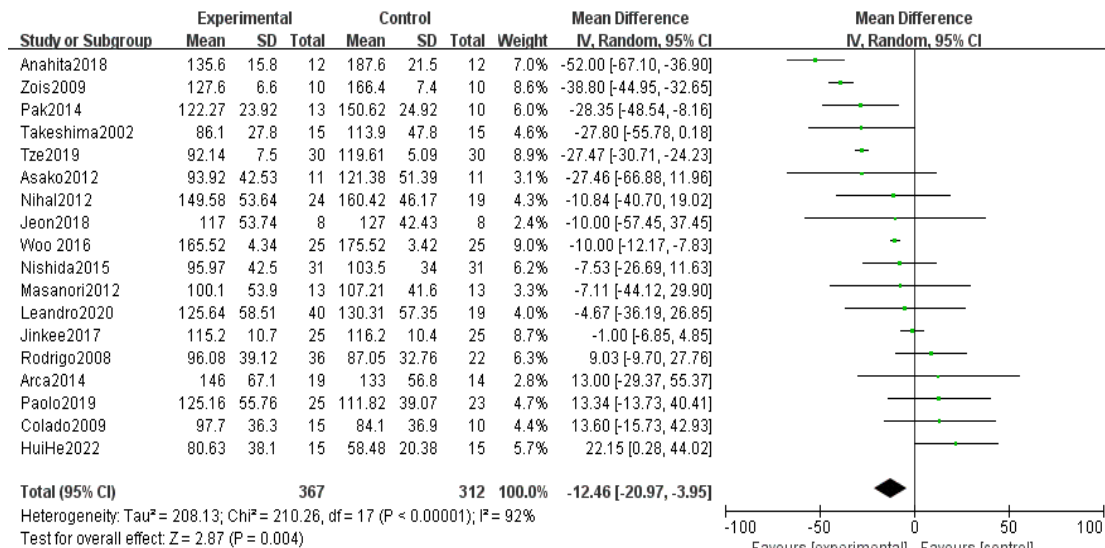


Figure S7 Pairwise Meta-analysis of exercise on LDL-C

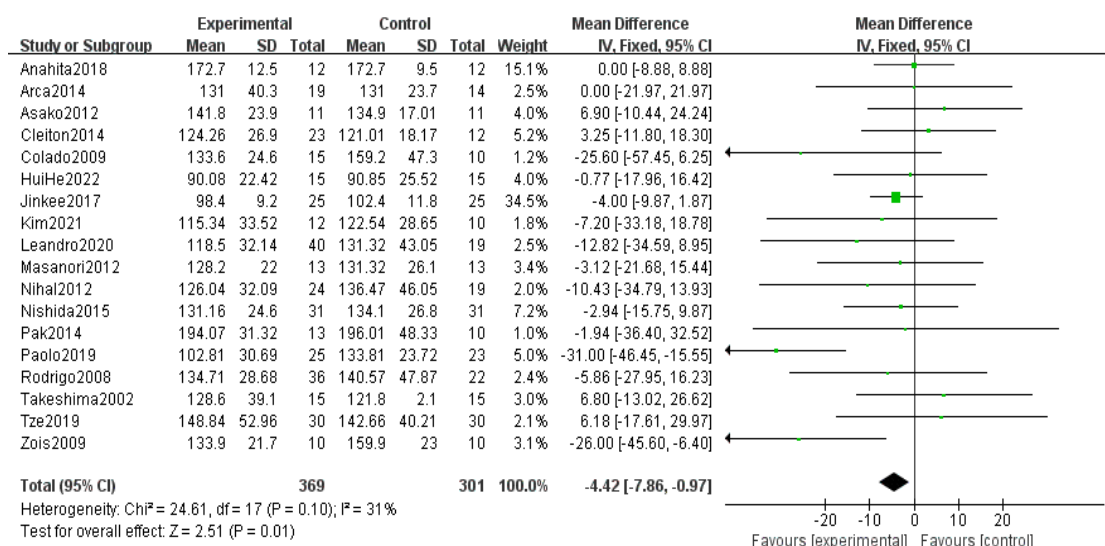


Figure S8 Pairwise Meta-analysis of exercise on HDL-C

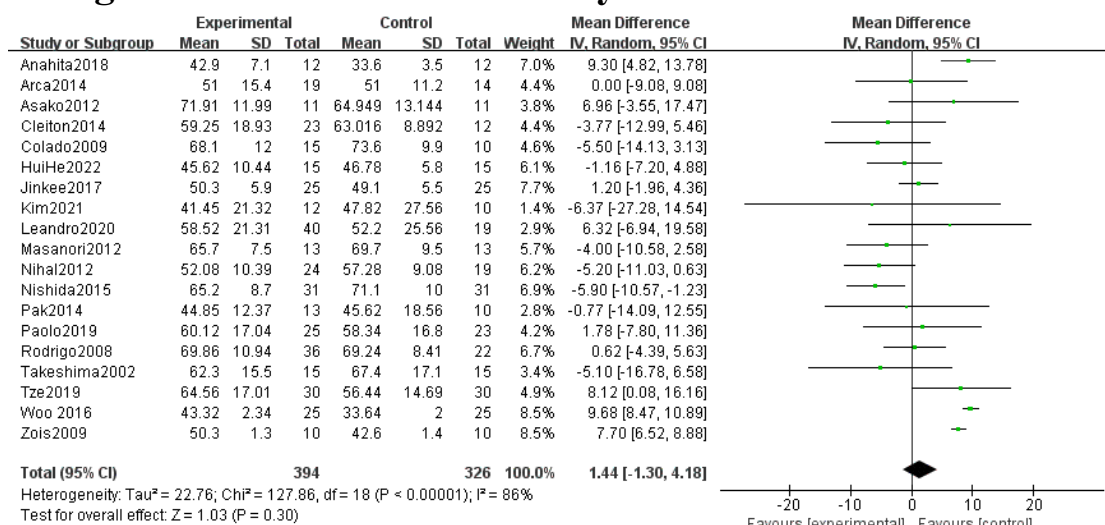


Figure S9 Cumulative ranking probability plots for SBP

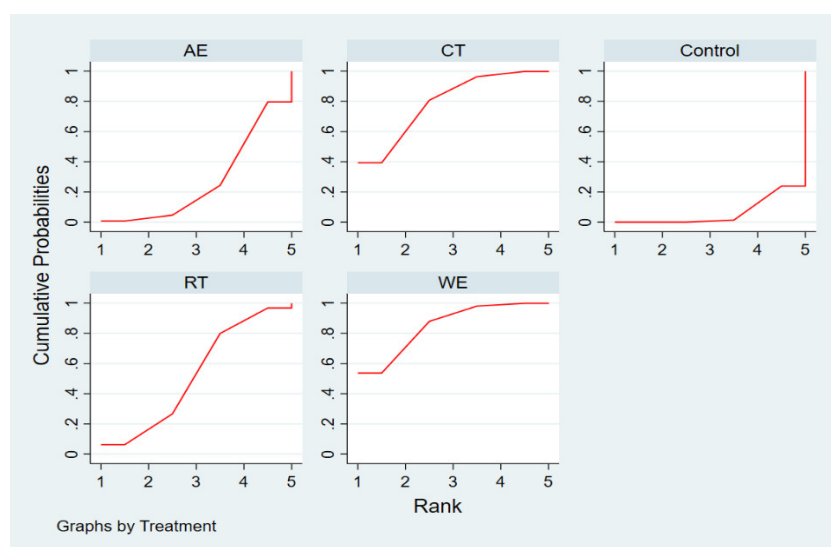


Figure S10 Cumulative ranking probability plots for DBP

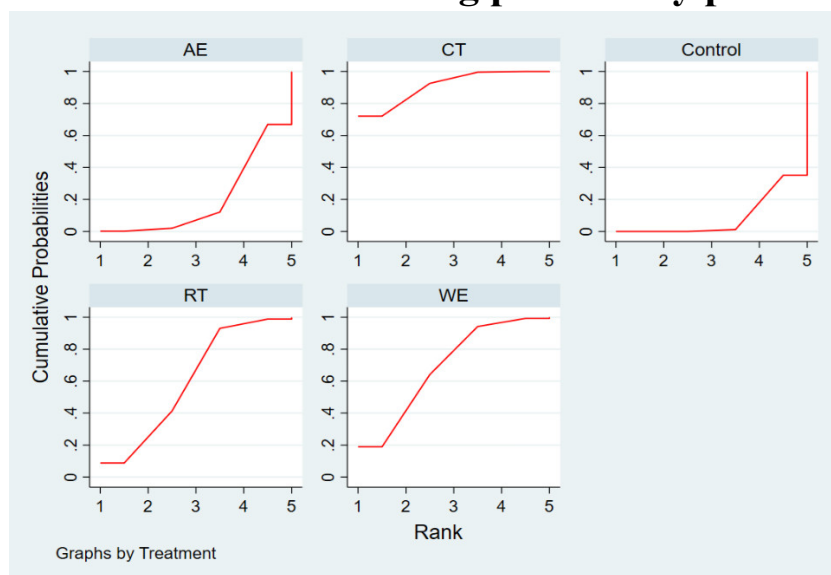


Figure S11 Cumulative ranking probability plots for TC

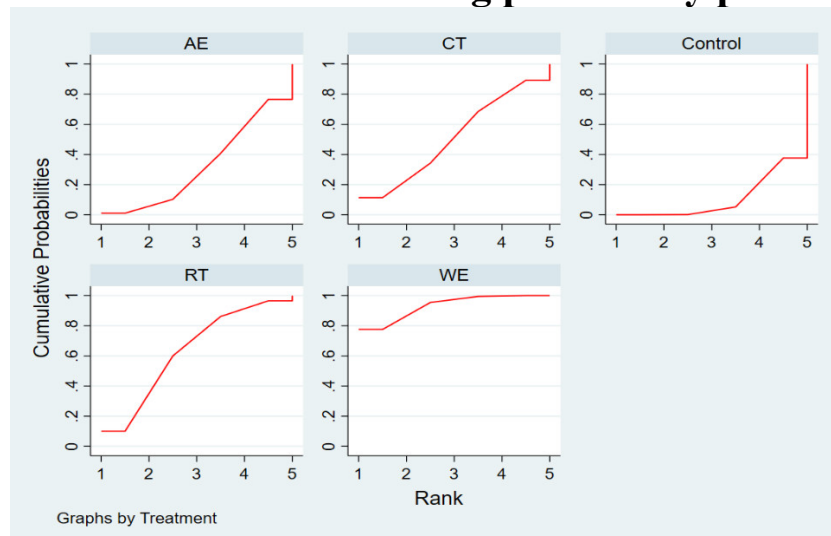


Figure S12 Cumulative ranking probability plots for TG

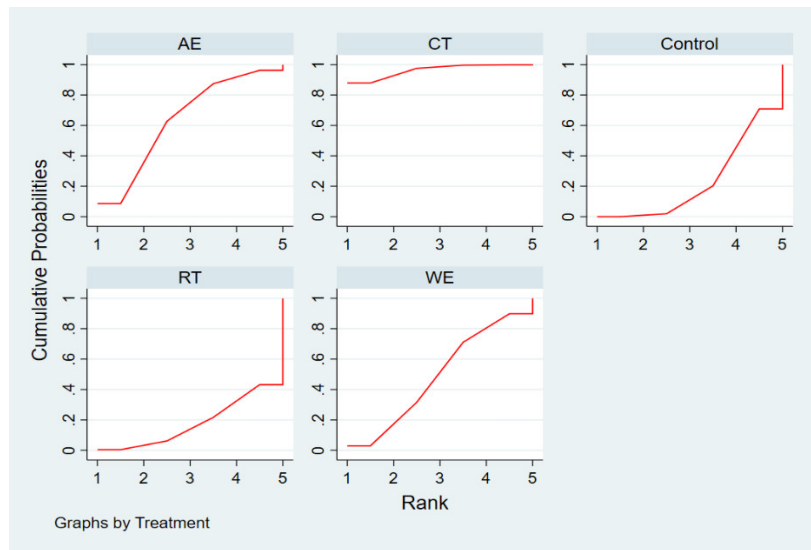


Figure S13 Cumulative ranking probability plots for LDL-C

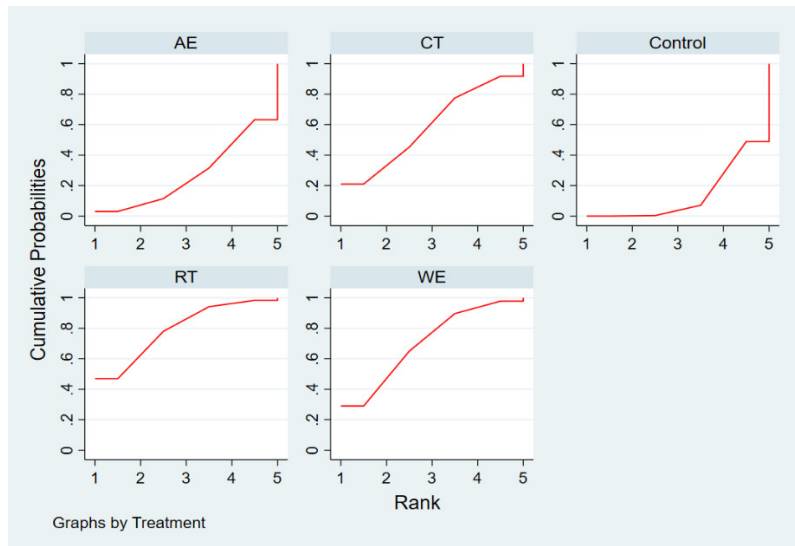


Figure S14 Cumulative ranking probability plots for HDL-C

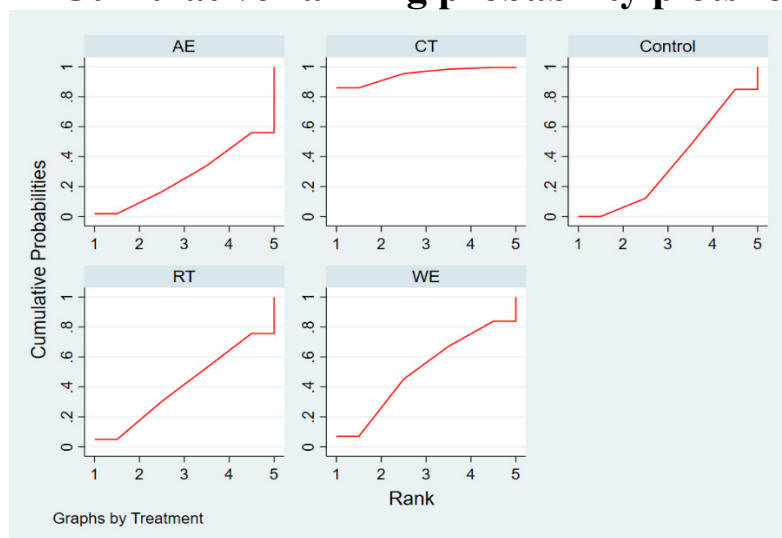


Figure S15 Network meta-analysis funnel plots for SBP

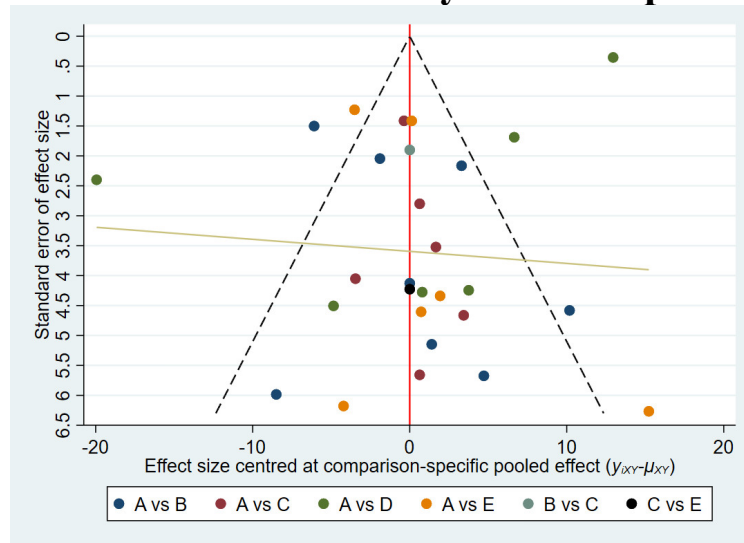


Figure S16 Network meta-analysis funnel plots for DBP

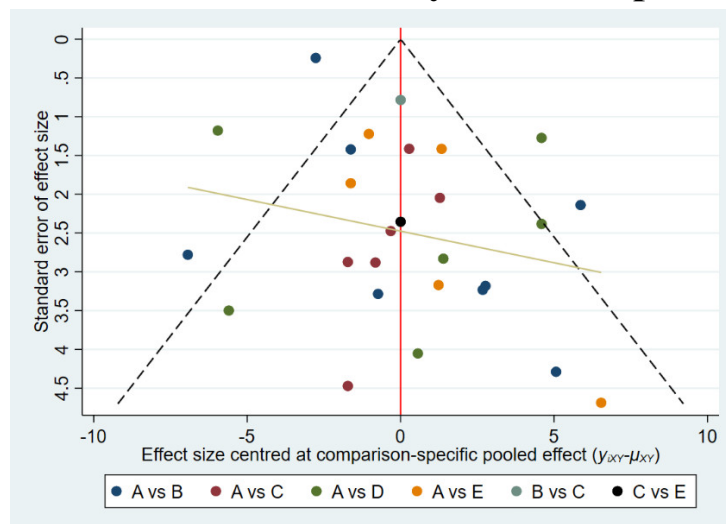


Figure S17 Network meta-analysis funnel plots for TC

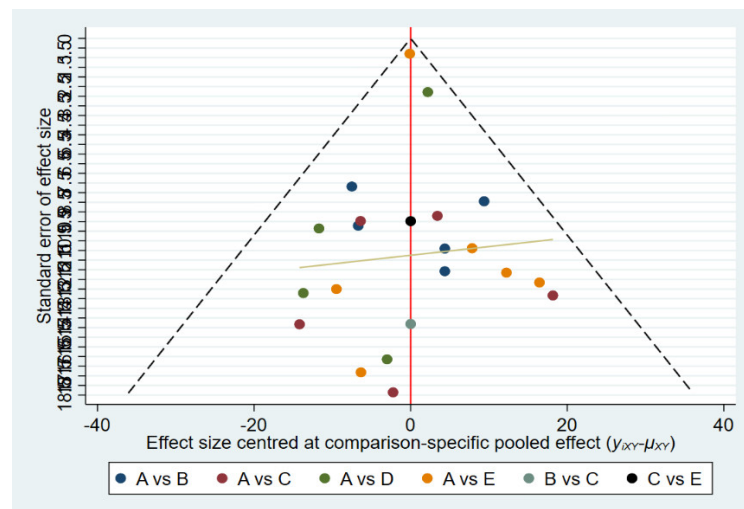


Figure S18 Network meta-analysis funnel plots for TG

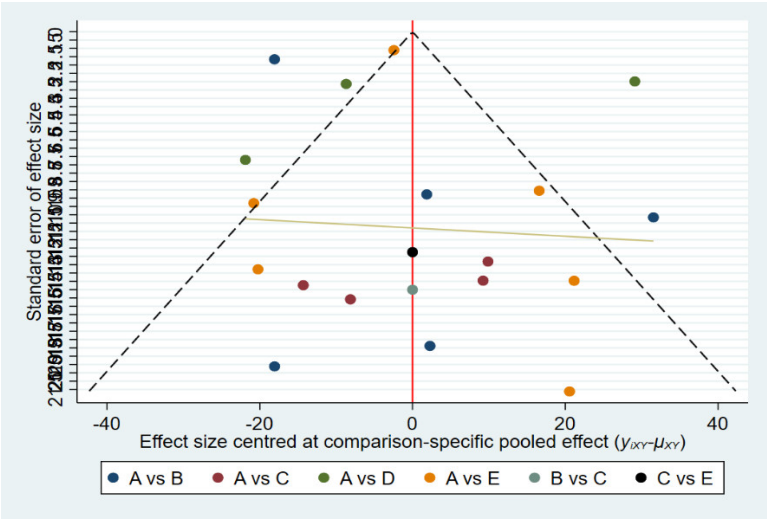


Figure S19 Network meta-analysis funnel plots for LDL-C

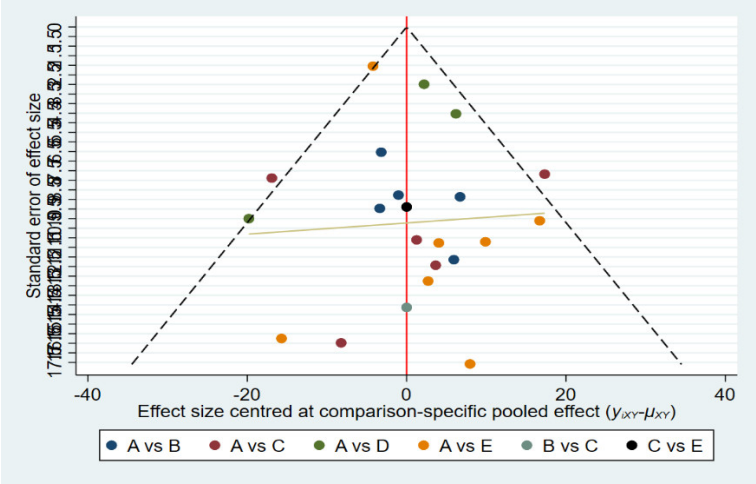


Figure S20 Network meta-analysis funnel plots for HDL-C

