

Supplementary file 1

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Table S1 Search strategy.

1. Cochrane

Search Name:

Date Run: 09/10/2024 04:08:47

Comment:

ID	Search	Hits
#1	Adult	836463
#2	(Adult):ti,ab,kw OR (Adults):ti,ab,kw OR (middle aged):ti,ab,kw	995046
#3	Sedentary	10909

#4	(Sedentary):ti,ab,kw OR (sitting):ti,ab,kw OR (sedentary behaviour):ti,ab,kw OR (Sedentary Behaviors):ti,ab,kw OR (Sedentary Lifestyle):ti,ab,kw	20860
#5	(Lifestyle, Sedentary):ti,ab,kw OR (Physical Inactivity):ti,ab,kw OR (Inactivity, Physical):ti,ab,kw OR (Lack of Physical Activity):ti,ab,kw OR (prolonged sitting):ti,ab,kw	8685
#6	(sedentary time):ti,ab,kw OR (sedentary work):ti,ab,kw	5265
#7	interrupting	778
#8	(interrupting):ti,ab,kw OR (break):ti,ab,kw OR (breaks):ti,ab,kw OR (breaking):ti,ab,kw OR (intervals):ti,ab,kw	68011
#9	(intermittent):ti,ab,kw OR (intermittens):ti,ab,kw OR (short bouts):ti,ab,kw OR (alternating):ti,ab,kw	24320
#10	exercise	144273
#11	(exercise):ti,ab,kw OR (Physical Activity):ti,ab,kw OR (Activities, Physical):ti,ab,kw OR (Activity, Physical):ti,ab,kw OR (Physical Activities):ti,ab,kw	176309
#12	(biometric exercise):ti,ab,kw OR (exertion):ti,ab,kw OR (fitness training):ti,ab,kw OR (fitness workout):ti,ab,kw OR (physical conditioning, human):ti,ab,kw	18801
#13	(physical exertion):ti,ab,kw OR (physical workout):ti,ab,kw	7358
#14	Sport	15753
#15	(Sport):ti,ab,kw OR (Sports):ti,ab,kw OR (Athletic):ti,ab,kw	19221
#16	walk	22211
#17	(walk):ti,ab,kw OR (walking):ti,ab,kw OR (recreational walking):ti,ab,kw OR (walking for fitness):ti,ab,kw OR (Nordic Walking):ti,ab,kw	45057
#18	stand	8586
#19	(stand):ti,ab,kw OR (standing):ti,ab,kw OR (orthostasis):ti,ab,kw OR (orthostatic position):ti,ab,kw OR (orthostatics):ti,ab,kw	19726
#20	(orthostatism):ti,ab,kw OR (stance):ti,ab,kw OR (standing position):ti,ab,kw OR (upright position):ti,ab,kw	6213
#21	Stair Climbing	945
#22	(Stair Climbing):ti,ab,kw OR (Climbing the stairs):ti,ab,kw OR (Ascending stairs):ti,ab,kw OR (descending stairs):ti,ab,kw OR (climbing stairs):ti,ab,kw	1317
#23	(climbing up stairs):ti,ab,kw OR (stairclimbing):ti,ab,kw OR (stairs climbing):ti,ab,kw	596

#24	Resistance Training	19653
#25	(Resistance Training):ti,ab,kw OR (Training, Resistance):ti,ab,kw OR (Strength Training):ti,ab,kw OR (Training, Strength):ti,ab,kw OR (Strengthening Program, Weight-Lifting):ti,ab,kw	31393
#26	(Weight Lifting Strengthening Program):ti,ab,kw OR (Exercise Program, Weight-Lifting):ti,ab,kw OR (Weight Lifting Exercise Program):ti,ab,kw OR (Strengthening Program, Weight-Bearing):ti,ab,kw OR (Weight Bearing Strengthening Program):ti,ab,kw	477
#27	(Exercise Program, Weight-Bearing):ti,ab,kw OR (Weight Bearing Exercise Program):ti,ab,kw OR (resistance-type training):ti,ab,kw OR (strength-type exercise):ti,ab,kw OR (strength-type training):ti,ab,kw	603
#28	pedal	724
#29	(pedal):ti,ab,kw OR (desk pedaling):ti,ab,kw OR (pedaling):ti,ab,kw	1054
#30	vascular blood flow	11025
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#32	(Velocity, Blood Flow):ti,ab,kw OR (Peripheral vascular blood flow):ti,ab,kw OR (Peripheral blood flow):ti,ab,kw	11142
#33	peripheral vascular shear stress	67
#34	(peripheral vascular shear stress):ti,ab,kw OR (Peripheral shear stress):ti,ab,kw	76
#35	flow-mediated dilation	2348
#36	(flow-mediated dilation):ti,ab,kw OR (flow mediated dilation):ti,ab,kw OR (FMD):ti,ab,kw	3869
#37	Pulse wave velocity	3458
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#39	(carotid-femoral pulse wave velocity):ti,ab,kw OR (carotid-radial pulse wave velocity):ti,ab,kw	728
#40	Arterial blood flow	9538
#41	(Arterial blood flow):ti,ab,kw OR (artery blood flow):ti,ab,kw OR (Central arterial blood flow):ti,ab,kw OR (arterial flow):ti,ab,kw OR (artery flow):ti,ab,kw	18298
#42	#1 OR #2	999658

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(Activity, Physical[Title/Abstract]))	OR	"Athletic"[Title/Abstract]	OR	"Walking"[MeSH Terms]	OR		
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(exertion[Title/Abstract]))	OR	"Walking"[MeSH Terms]	OR	"Walking"[All Fields]	OR		
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(fitness workout[Title/Abstract]))	OR	"stand"[Title/Abstract]	OR	"standing"[Title/Abstract]	OR		
(physical conditioning, human[Title/Abstract]))	OR	"orthostasis"[Title/Abstract]	OR	"orthostatic position"[Title/Abstract]	OR		
(physical exertion[Title/Abstract]))	OR	"orthostatics"[Title/Abstract]	OR	"orthostatism"[Title/Abstract]	OR		
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(recreational							

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3. Embase

Session Results

No.	Query Results	Results	Date
#5.	#1 AND #2 AND #3 AND #4	623	9 Oct 2024
#4.	'vascular blood flow' OR 'vascular blood flow':ti,ab,kw OR 'blood flow velocities':ti,ab,kw OR 'flow velocities, blood':ti,ab,kw OR 'flow velocity, blood':ti,ab,kw OR 'velocities, blood flow':ti,ab,kw OR 'peripheral vascular blood flow':ti,ab,kw OR 'peripheral blood flow':ti,ab,kw OR 'velocity, blood flow':ti,ab,kw OR 'peripheral vascular shear	122,755 9	Oct 2024

	stress' OR 'peripheral vascular shear stress':ti,ab,kw OR 'peripheral shear stress':ti,ab,kw OR 'flow-mediated dilation' OR 'flow-mediated dilation':ti,ab,kw OR 'flow mediated dilation':ti,ab,kw OR fmd:ti,ab,kw OR 'pulse wave velocity'/exp OR 'pulse wave velocity':ti,ab,kw OR pwv:ti,ab,kw OR 'aortic pulse wave velocity':ti,ab,kw OR 'brachial-ankle pulse wave velocity':ti,ab,kw OR 'arterial pulse wave velocity':ti,ab,kw OR 'carotid-femoral pulse wave velocity':ti,ab,kw OR 'carotid-radial pulse wave velocity':ti,ab,kw OR 'arterial blood flow'/exp OR 'arterial blood flow':ti,ab,kw OR 'artery blood flow':ti,ab,kw OR 'central arterial blood flow':ti,ab,kw OR 'arterial flow':ti,ab,kw OR 'artery flow':ti,ab,kw		
#3.	interrupting OR interrupting:ti,ab,kw OR break:ti,ab,kw OR breaks:ti,ab,kw OR intervals:ti,ab,kw OR breaking:ti,ab,kw OR intermittent:ti,ab,kw OR intermittens:ti,ab,kw OR 'short bouts':ti,ab,kw OR alternating:ti,ab,kw OR 'exercise'/exp OR exercise:ti,ab,kw OR 'physical activity':ti,ab,kw OR 'activities, physical':ti,ab,kw OR 'activity, physical':ti,ab,kw OR 'physical activities':ti,ab,kw OR 'biometric exercise':ti,ab,kw OR exertion:ti,ab,kw OR 'fitness training':ti,ab,kw OR 'fitness workout':ti,ab,kw OR 'physical exertion':ti,ab,kw OR 'physical conditioning, human':ti,ab,kw OR 'physical workout':ti,ab,kw OR 'sport'/exp OR sport:ti,ab,kw OR sports:ti,ab,kw OR athletic:ti,ab,kw OR walk OR walk:ti,ab,kw OR walking:ti,ab,kw OR 'recreational walking':ti,ab,kw OR 'walking for fitness':ti,ab,kw OR 'nordic walking':ti,ab,kw OR 'stand'/exp OR stand:ti,ab,kw OR standing:ti,ab,kw OR 'standing'/exp OR orthostasis:ti,ab,kw OR orthostatics:ti,ab,kw OR 'orthostatic position':ti,ab,kw OR orthostatism:ti,ab,kw OR stance:ti,ab,kw OR 'standing position':ti,ab,kw OR 'upright position':ti,ab,kw OR 'stair climbing'/exp OR 'stair climbing':ti,ab,kw OR 'climbing the stairs':ti,ab,kw OR 'ascending stairs':ti,ab,kw OR 'descending stairs':ti,ab,kw OR 'climbing stairs':ti,ab,kw OR 'climbing up stairs':ti,ab,kw OR stairclimbing:ti,ab,kw OR 'stairs climbing':ti,ab,kw OR 'resistance training'/exp OR 'resistance training':ti,ab,kw OR 'training, resistance':ti,ab,kw OR 'strength training':ti,ab,kw OR 'training, strength':ti,ab,kw OR 'strengthening program, weight-lifting':ti,ab,kw OR 'weight lifting strengthening program':ti,ab,kw OR 'exercise program, weight-lifting':ti,ab,kw OR 'weight lifting exercise program':ti,ab,kw OR 'strengthening program, weight-bearing':ti,ab,kw OR 'weight bearing strengthening program':ti,ab,kw OR 'exercise program, weight-bearing':ti,ab,kw	2,181,216	9 Oct 2024

	OR 'weight bearing exercise program':ti,ab,kw OR 'resistance-type training':ti,ab,kw OR 'strength-type exercise':ti,ab,kw OR 'strength-type training':ti,ab,kw OR pedal OR 'desk pedaling':ti,ab,kw OR pedaling:ti,ab,kw		
#2.	sedentary OR sedentary:ti,ab,kw OR sitting:ti,ab,kw OR 'sedentary behaviour':ti,ab,kw OR 'sedentary behaviors':ti,ab,kw OR 'sedentary lifestyle':ti,ab,kw OR 'lifestyle, sedentary':ti,ab,kw OR 'physical inactivity':ti,ab,kw OR 'inactivity, physical':ti,ab,kw OR 'lack of physical activity':ti,ab,kw OR 'prolonged sitting':ti,ab,kw OR 'sedentary time':ti,ab,kw OR 'sedentary work':ti,ab,kw	115,574	9 Oct 2024
#1.	'adult'/exp OR adults:ti,ab,kw OR 'middle aged':ti,ab,kw	12,169,334	9 Oct 2024

4. Web of Science

Entitlements

- WOS: 1985 to 2024
- BIOSIS: 1996 to 2024
- DIIDW: 1966 to 2015
- KJD: 1980 to 2024
- MEDLINE: 1950 to 2024
- PPRN: 1991 to 2024
- PQDT: 1637 to 2024
- SCIELO: 2002 to 2024

	Search Query	Database	Results	Date Run
1	(TS=(Adult) OR TS=(Adults) OR TS=(middle aged)) NOT (SILOID=="PPRN") and Preprint Citation Index (Exclude – Database)	All Databases	11159314	Wed Oct 09 2024 14:06:32 GMT+0800
2	(TS=(Sedentary) OR TS=(sitting) OR TS=(sedentary behaviour) OR TS=(Sedentary Behaviors) OR TS=(Sedentary Lifestyle) OR TS=(Lifestyle, Sedentary) OR TS=(Physical Inactivity) OR TS=(Inactivity,	All Databases	All Databases	417843

	Physical) OR TS=(Lack of Physical Activity) OR TS=(prolonged sitting) OR TS=(sedentary time) OR TS=(sedentary work)) NOT (SILOID=="PPRN")) and Preprint Citation Index (Exclude – Database)			
3	(TS=(interrupting) OR TS=(break) OR TS=(breaks) OR TS=(breaking) OR TS=(intervals) OR TS=(intermittent) OR TS=(intermittens) OR TS=(alternating) OR TS=(short bouts) OR TS=(exercise) OR TS=(Physical Activity) OR TS=(Activities, Physical) OR TS=(Activity, Physical) OR TS=(Physical Activities) OR TS=(biometric exercise) OR TS=(exertion) OR TS=(fitness training) OR TS=(fitness workout) OR TS=(physical conditioning, human) OR TS=(physical exertion) OR TS=(physical workout) OR TS=(Sport) OR TS=(Sports) OR TS=(Athletic) OR TS=(walk) OR TS=(walking) OR TS=(recreational walking) OR TS=(walking for fitness) OR TS=(Nordic Walking) OR TS=(stand) OR TS=(standing) OR TS=(orthostasis) OR TS=(orthostatic position) OR TS=(orthostatics) OR TS=(orthostatism) OR TS=(stance) OR TS=(standing position) OR TS=(upright position) OR TS=(Stair Climbing) OR TS=(Climbing the stairs) OR TS=(Ascending stairs) OR TS=(descending stairs) OR TS=(stair climbing) OR TS=(climbing stairs) OR TS=(climbing up stairs) OR TS=(stairclimbing) OR TS=(stairs climbing) OR TS=(Resistance Training) OR TS=(Training, Resistance) OR TS=(Strength Training) OR TS=(Training, Strength) OR TS=(Strengthening Program, Weight-Lifting) OR TS=(Weight Lifting Strengthening Program) OR TS=(Exercise Program, Weight-Lifting) OR TS=(Weight Lifting Exercise Program) OR TS=(Strengthening Program, Weight-Bearing) OR TS=(Weight Bearing Strengthening Program) OR TS=(Exercise Program, Weight-Bearing) OR TS=(Weight Bearing Exercise Program) OR TS=(resistance-type training) OR TS=(strength-type exercise) OR TS=(strength-type training) OR TS=(pedal) OR TS=(desk pedaling) OR TS=(pedaling)) NOT (SILOID=="PPRN")) and Preprint Citation Index (Exclude – Database)	All Databases	All Databases	11372397
4	(TS=(vascular blood flow) OR TS=(Blood Flow Velocities) OR TS=(Flow Velocities, Blood) OR TS=(Flow Velocity, Blood) OR TS=(Velocities, Blood Flow) OR TS=(Velocity, Blood Flow) OR TS=(Peripheral vascular blood flow) OR TS=(Peripheral blood flow) OR TS=(peripheral vascular shear stress) OR TS=(Peripheral shear stress) OR TS=(flow-mediated dilation) OR TS=(flow mediated dilation) OR TS=(FMD) OR TS=(Pulse wave velocity) OR TS=(pwv) OR TS=(aortic pulse wave velocity) OR	All Databases	620186	Wed Oct 09 2024 14:08:16 GMT+0800

	TS=(arterial pulse wave velocity) OR TS=(brachial-ankle pulse wave velocity) OR TS=(carotid-femoral pulse wave velocity) OR TS=(carotid-radial pulse wave velocity) OR TS=(Arterial blood flow) OR TS=(artery blood flow) OR TS=(Central arterial blood flow) OR TS=(arterial flow) OR TS=(artery flow)) NOT (SILOID=="PPRN")) and Preprint Citation Index (Exclude – Database)			
5	#4 AND #3 AND #2 AND #1 and Preprint Citation Index (Exclude – Database)	All Databases	1852	Wed Oct 09 2024 14:08:36 GMT+0800

Table S2 Basic characteristics of the included studies.

Study	Country	Protocol						Number of cases (male/female) Age (years) Health profile BMI (kg/m2)	Outcomes
		Methods	Duration (min)	Frequenc y (min)	Break time (min)	Number of breaks	Intensity		
Caldwell 2021(1)	Canada	Aerobic activities	510	60	0.3	8	N/A	10/0 24 ± 4	③④
		Siting	510	N/A	N/A	N/A	N/A	Healthy 24 ± 2	
Carter 2018(2)	United Kingdo m	Walking	240	30	2	8	N/A	10/5	①
		Walking	240	120	8	2	N/A	35.8 ± 10.2	
		Siting	240	N/A	N/A	N/A	N/A	Healthy 25.5 ± 3.2	

Carter 2019(3)	United Kingdom	Walking	240	30	2	8	N/A	10/5	①②③④
		Walking	240	120	8	2	N/A	35.8 ± 10.2	
		Siting	240	N/A	N/A	N/A	N/A	Healthy 25.5 ± 3.2	
Carter 2016(4)	United Kingdom	Aerobic activities	86	20	2	3	N/A	6/4 27.3 ± 8.1	①③④
		Siting	86	N/A	N/A	N/A	N/A	Healthy	
								25.5 ± 3.2	
Chandran 2023(5)	India	Walking	240	60	3	4	Low	17/4	②③
		Aerobic activities	240	60	3	4	Medium	26.65 ± 2.64 N/A	
		Siting	240	N/A	N/A	N/A	N/A	N/A	
Cho 2020(6)	South Korea	Aerobic activities	240	60	5	4	Medium	7/5 23.5 ± 2.9	②③④
		Siting	240	N/A	N/A	N/A	N/A	Healthy	
								23.4 ± 2.7	
Climie 2018(7)	Australia	Resistance activities	300	30	3	10	N/A	11/8 57 ± 12	②③④
		Siting	300	N/A	N/A	N/A	N/A	Overweight/Obese	
								30.6 ± 3.4	

Evans 2019(8)	America	Lower- extremity activities	180	10	0.5	18	N/A	6/14 21.7 ± 2.5 Healthy	①⑦
		Siting	180	N/A	N/A	N/A	N/A	25.5 ± 6.1	
Gibbs 2017(9)	America	Standing	440	30	10	8	N/A	16/9 42 ± 12	①⑤⑥⑦
		Siting	440	N/A	N/A	N/A	N/A	Overweight/Obese N/A	
Hartman 2020(10)	Netherla nds	Walking	180	30	2	6	Low	9/15 65 ± 5	①④
		Siting	180	N/A	N/A	N/A	N/A	Cardiovascular risk 29.8 ± 3.9	
Horiuchi 2023(11)	Japan	Lower- extremity activities	180	20	1	9	Low	11/9 21 ± 1 Healthy	①②
		Siting	180	N/A	N/A	N/A	N/A	21.6 ± 1.6	
Horiuchi 2022(12)	Japan	Lower- extremity activities	180	20	1	9	Low	10/10 21 ± 2 Healthy	①⑥
		Siting	180	N/A	N/A	N/A	N/A	21.5 ± 1.6	

Horiuchi M 2022(13)	Japan	Lower- extremity activities	180	20	1	9	Low	10/10 21 ± 2 Healthy	①⑥
		Siting	180	N/A	N/A	N/A	N/A	21.5 ± 1.6	
Kowalsky 2019(14)	America	Resistance activities	240	60	20	4	Low	2/12 53.4 ± 9.5 risk of cardiometabolic disease	⑤⑥⑦
		Siting	240	N/A	N/A	N/A	N/A	30.9 ± 4.8	
Kruse 2017(15)	America	Standing	240	60	10	4		10/3	②③④
		Aerobic activities	240	60	10	10	Low	38 ± 3 Overweight/Obese	
		Siting	240	N/A	N/A	N/A	N/A	29.7 ± 2	
Morishima 2016(16)	America	Lower- extremity activities	180	4	0.08	12	N/A	7/4 26 ± 1 Healthy	②③④
		Siting	180	N/A	N/A	N/A	N/A	25.0 ± 1.1	
Park 2022(17)	America	Aerobic activities	150	30	2	5	N/A	7/7 24 ± 2	①②③④⑤⑥⑦

		Aerobic activities	150	30	2	5	N/A	Healthy 24.5 ± 3.7	
		Siting	150	N/A	N/A	N/A	N/A		
Peddie 2021(18)	New Zealand	Walking	360	30	2	11	N/A	11/7	②③④
		Standing	360	30	2	11	N/A	23.5 ± 5.0	
		Siting	360	N/A	N/A	N/A	N/A	Healthy 23.7 ± 2.6	
Rogers 2023(19)	America	Resistance activities	180	30	3	5	N/A	8/16 27 ± 7	②③
		Siting	180	N/A	N/A	N/A	N/A	N/A 24 ± 3	
Silva 2021(20)	Brazil	Lower-extremity activities	180	30	2	6	Low	6/11 29 ± 10	②④
		Walking	180	30	2	6	Low	Healthy 25.1 ± 5.1	
		Siting	180	N/A	N/A	N/A	N/A		
Stoner 2019(21)	America	Lower-extremity activities	180	10	0.5	18	N/A	6/14 21.7± 2.5	①
		Siting	180	N/A	N/A	N/A	N/A	Healthy 25.5 ± 6.1	

Taylor F2021(22)	Australia	Resistance activities	420	30	3	14	N/A	13/11	②③④
		Resistance activities	420	60	6	7	N/A	61.5 ± 7.8 Type 2 diabetes	
		Siting	420	N/A	N/A	N/A	N/A	32.6 ± 3.5	
Taylor F2021(23)	Australia	Resistance activities	210	60	6	3	Low	0/13	④
		Resistance activities	210	30	3	6	N/A	32.2 ± 6.3 Polycystic ovary syndrome	
		Siting	210	N/A	N/A	N/A	N/A	30.2 ± 5.3	
Thosar 2015(24)	America	Walking	180	60	5	3	N/A	12/0 24.2 ± 4	④
		Siting	180	N/A	N/A	N/A	N/A	N/A 23.7±3.4	
Tucker 2017(25)	America	Aerobic activities	28	3	4	4	85–95%	13/0	④
		Aerobic activities	32	1	1	16	85–95%	27 ± 1 Healthy	
		Siting	32	N/A	N/A	N/A	N/A	25.6±1.1	

Wheeler 2019(26)	Australia	Walking	480	N/A	30	1	Medium	2/10	①
		Walking	480	30	30/3	1/19	Medium	70 ± 7 Overweight/Obese	
		Siting	480	N/A	N/A	N/A	N/A	30.4 ± 4.3	
Wright 2023(27)	Australia	Standing	180	30	10	4	N/A	15/0	①⑦
		Siting	180	30	10	4	N/A	23 ± 4 N/A	
		Siting	180	N/A	N/A	N/A	N/A	27.8 ± 7.3	

① Mean Arterial Pressure; ② Blood Flow; ③ Mean Arterial Shear Rate; ④ Flow-Mediated Dilation%; ⑤ Carotid-to-radial pulse-wave velocity; ⑥ Carotid-to-ankle pulse-wave velocity; ⑦ Carotid-to-femoral pulse-wave velocity. BMI: Body mass index.

Table S3 Global inconsistency and heterogeneity of each outcome.

Outcomes	Consistency model					Inconsistency model					dDIC
	Dbar	data points	pD	DIC	I ²	Dbar	data points	pD	DIC	I ²	
Mean Arterial Pressure	21.27	26	18.53	39.81	0%	21.33	26	18.60	39.93	6%	0.12
Blood Flow	28.85	28	24.94	53.79	6%	28.68	28	26.26	54.95	6%	1.16
Mean Arterial Shear Rate	27.96	27	26.78	54.74	7%	27.73	27	26.97	54.70	0%	0.04
Flow-Mediated Dilation%	37.44	37	34.38	71.83	4%	37.21	37	35.24	72.45	3%	0.62
Carotid-to-radial PWV	6.01	6	6.01	12.02	17%	5.97	6	5.97	11.94	16%	0.08

Carotid-to-ankle PWV	10.02	10	10.02	20.04	10%	10.02	10	10.01	20.03	10%	0.01
Carotid-to-femoral PWV	10.01	10	10.00	20.02	10%	10.00	10	9.99	20.00	10%	0.02
DIC: deviance information criterion; dDIC: the difference between each pair of DICs; PWV: pulse-wave velocity.											

Table S4 Node-Splitting results of all outcomes.

Comparisons		Mean Difference (95%CI)			<i>p</i> Value
		Direct	Indirect	Network	
Blood Flow					
Standing	Aerobic activities	-0.16 (-24.11, 24.17)	-97.21 (-133.59, -55.87)	-35.62 (-91.96, 16.77)	<i>p</i> = 0.007 *
Walking	Aerobic activities	-40.94 (-181.81, 99.28)	-43.59 (-108.13, 13.04)	-43.19 (-101.59, 9.14)	<i>p</i> = 0.951
Walking	Lower-extremity activities	-23.12 (-116.53, 70.17)	4.21 (-80.54, 79.47)	-4.17 (-61.41, 47.35)	<i>p</i> = 0.639
Walking	Standing	15.72 (-66.24, 98.11)	-37.83(-131.75, 51.63)	-7.24 (-64.30, 44.97)	<i>p</i> = 0.336
Mean Arterial Shear Rate					
Standing	Aerobic activities	3.36 (-207.31, 209.76)	-98.90 (-312.68, 106.80)	-56.70 (-186.05, 70.18)	<i>p</i> = 0.431
Walking	Aerobic activities	-215.03 (-315.01, -114.87)	-16.39 (-79.56, 41.83)	-71.91 (-192.05, 43.17)	<i>p</i> = 0.005 *
Walking	Standing	10.66 (-209.63, 231.43)	-48.69 (-291.39, 192.02)	-15.09 (-154.53, 122.40)	<i>p</i> = 0.671
Flow-Mediated Dilation%					
Siting	Aerobic activities	-1.5 (-2.88, 0.64)	-1.83 (-6.53, 2.99)	-1.23 (-2.67, 0.26)	<i>p</i> = 0.767
Standing	Aerobic activities	-0.11 (-4.36, 4.12)	-0.96 (-5.21, 3.42)	-0.66 (-3.31, 2.01)	<i>p</i> = 0.759
Walking	Aerobic activities	-0.32 (-4.37, 3.72)	0.37 (-2.11, 2.81)	0.19 (-1.81, 2.19)	<i>p</i> = 0.742
Walking	Lower-extremity activities	-0.89 (-5.49, 3.67)	-4.29 (-8.84, 0.17)	-2.42 (-5.42, 0.60)	<i>p</i> = 0.273
Walking	Siting	1.33 (-0.75, 3.30)	0.82 (-3.76,5.44)	1.42 (-0.26, 3.04)	<i>p</i> = 0.825
Walking	Standing	-0.80 (-4.26, 3.05)	1.35 (-2.12, 4.82)	0.85 (-1.92, 3.57)	<i>p</i> = 0.375

CI: confidence interval.

Table S5 Matrix of the network meta-analysis results for Mean Arterial Pressure

Mean Arterial Pressure	Aerobic activities				
	1.45 (-1.27, 4.4)	Lower-extremity activities			
	2.03 (0.22, 4.19) *	0.61 (-1.48, 2.67)	Siting		
	2.31 (-0.21, 5.57)	0.9 (-1.88, 3.91)	0.27 (-1.62, 2.54)	Standing	
	2.1 (-0.38, 4.54)	0.65 (-1.95, 3.08)	0.06 (-1.58, 1.37)	-0.21 (-3.13, 2.01)	Walking
Each cell shows the Mean Difference, along with the 95% confidence interval.					

Table S6 Matrix of the network meta-analysis results for Blood Flow

Blood Flow	Aerobic activities					
	38.85 (-19.69, 97.71)	Lower-extremity activities				
	15.7 (-45.03, 76.54)	-23.19 (-84.46, 38.26)	Resistance activities			
	48.6 (7.53, 90.59) *	9.73 (-32.53, 52.49)	32.91 (-10.89, 77.12)	Siting		
	35.53 (-17.53, 91.33)	-3.24 (-64.79, 59.98)	19.88 (-43.38, 86.06)	-13.01 (-59.23, 35.34)	Standing	
	43.15 (-9.47, 101.17)	4.14 (-48.15, 61.9)	27.27 (-30.64, 90.83)	-5.59 (-44.8, 38.32)	7.27 (-45.56, 63.86)	Walking
Each cell shows the Mean Difference, along with the 95% confidence interval.						

Table S7 Matrix of the network meta-analysis results for Mean Arterial Shear Rate

	Aerobic activities	
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Mean Arterial Shear Rate	62.4 (-134.44, 264.16)	Lower-extremity activities				
	66.85 (-61.93, 200.28)	4.68 (-209.55, 219.31)	Resistance activities			
	75.94 (3.68, 153.61) *	13.7 (-170.78, 198.29)	9.13 (-98.77, 117.57)	Siting		
	56.55 (-68.89, 186.4)	-5.47 (-225.93, 213.25)	-10.02 (-171.25, 149.72)	-18.92 (-138.67, 99.1)	Standing	
	71.88 (-42.76, 191.53)	9.79 (-202.2, 221.41)	5.15 (-145.08, 154.45)	-4.07 (-107.37, 98.59)	15.02 (-120.79, 151.96)	Walking
Each cell shows the Mean Difference, along with the 95% confidence interval.						

Table S8 Matrix of the network meta-analysis results for Flow-Mediated Dilation%

Flow-Mediated Dilation%	Aerobic activities					
	-2.96 (-6.46, 0.64)	Lower-extremity activities				
	0.42 (-2.81, 3.58)	3.38 (-0.7, 7.3)	Resistance activities			
	0.9 (-0.97, 2.75)	3.86 (0.77, 6.84) *	0.49 (-2.1, 3.11)	Siting		
	0.4 (-2.63, 3.41)	3.37 (-0.72, 7.35)	-0.01 (-3.78, 3.78)	-0.5 (-3.24, 2.26)	Standing	
	-0.61 (-3.24, 2.07)	2.35 (-1, 5.69)	-1.02 (-4.24, 2.33)	-1.51 (-3.42, 0.5)	-1.01 (-4.06, 2.12)	Walking

Table S9 Matrix of the network meta-analysis results for Pulse-Wave Velocity

Carotid-to-radial PWV	Aerobic activities			
	-0.1 (-0.54, 0.34)	Resistance activities		
	-0.2 (-0.47, 0.07)	-0.1 (-0.45, 0.26)	Siting	
	-0.3 (-0.7, 0.1)	-0.2 (-0.66, 0.26)	-0.1 (-0.39, 0.2)	Standing
	Aerobic activities			

Carotid-to- ankle PWV	-3.02 (-21.72, 15.82)	Lower-extremity activities			
	-0.03 (-21.6, 21.75)	2.99 (-15.79, 21.8)	Resistance activities		
	-0.14 (-15.47, 15.21)	2.84 (-8.01, 13.72)	-0.13 (-15.42, 15.15)	Siting	
	0.22 (-21.42, 21.77)	3.2 (-15.62, 21.98)	0.21 (-21.44, 21.84)	0.35 (-14.98, 15.67)	Standing
Carotid-to- femoral PWV	Aerobic activities				
	-2.99 (-21.72, 15.8)	Lower-extremity sactivities			
	-0.06 (-21.72, 21.62)	2.95 (-15.85, 21.91)	Resistance activities		
	-0.18 (-15.46, 15.23)	2.83 (-8.01, 13.69)	-0.11 (-15.55, 15.21)	Siting	
	0.16 (-21.62, 21.77)	3.15 (-15.73, 21.97)	0.19 (-21.6, 21.94)	0.31 (-15.04, 15.69)	Standing
Each cell shows the Mean Difference, along with the 95% confidence interval.					

Table S10 Egger's publication test.

Detection indicators	<i>p</i> Value
Mean Arterial Pressure	<i>p</i> = 0.476
Blood Flow	<i>p</i> = 0.147
Mean Arterial Shear Rate	<i>p</i> = 0.528
Flow-Mediated Dilation%	<i>p</i> = 0.895

Figure S1 Risk of bias graph.

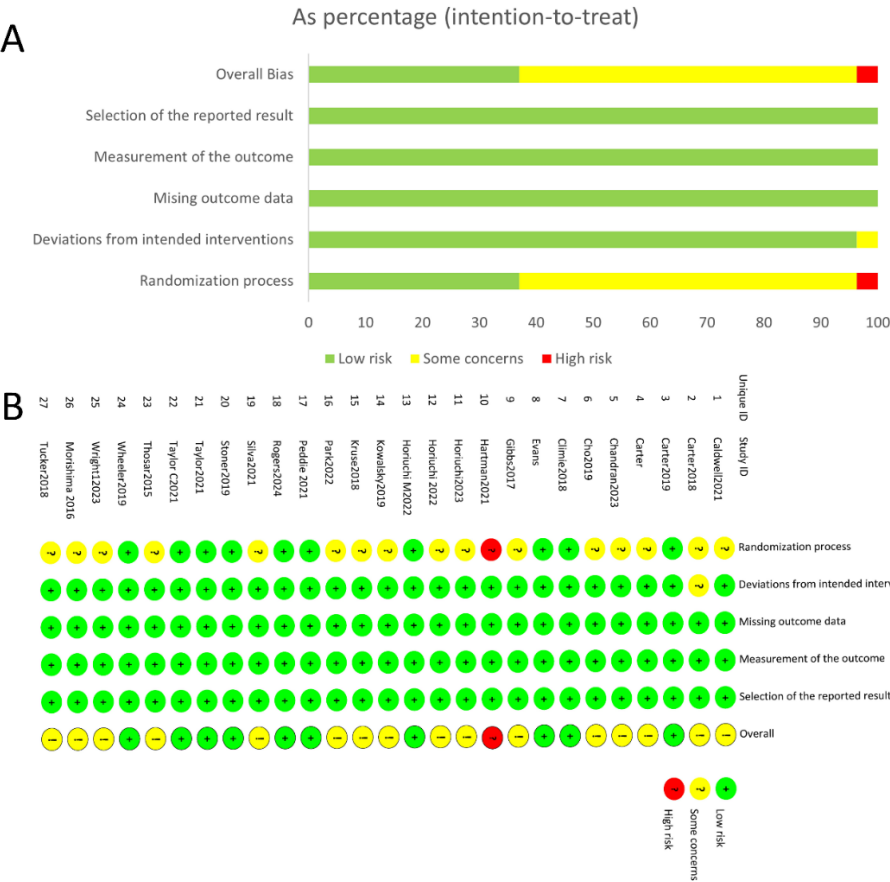


Figure S2 Pairwise Meta-analysis of sedentary interruption Interventions on Mean Arterial Pressure.

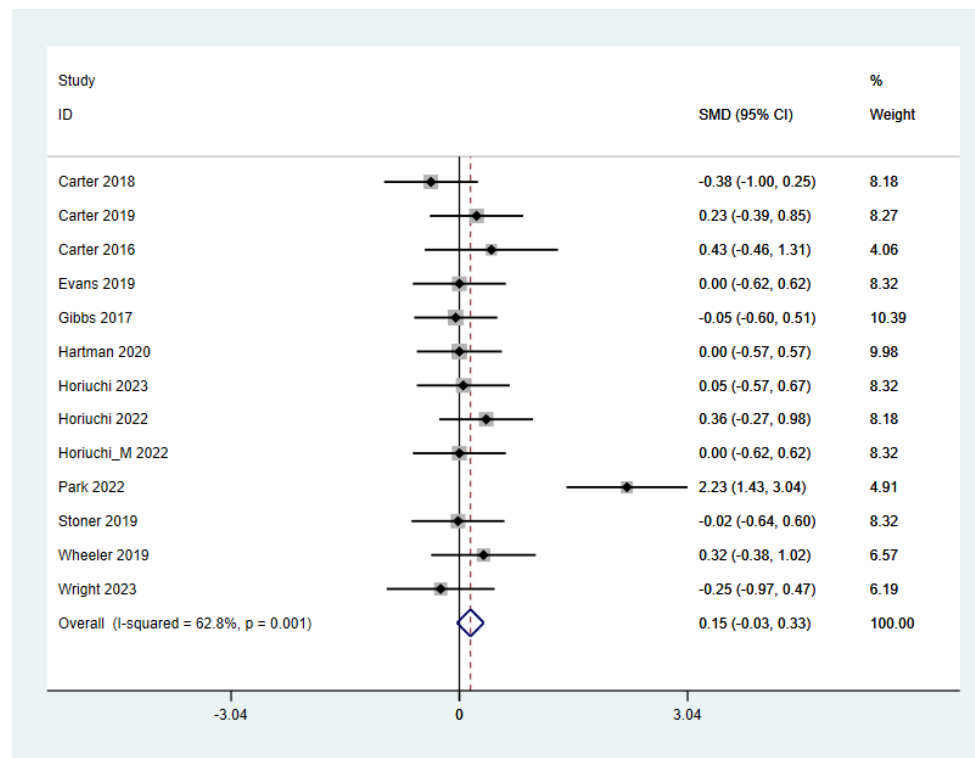


Figure S3 Pairwise Meta-analysis of sedentary interruption Interventions on Blood Flow.

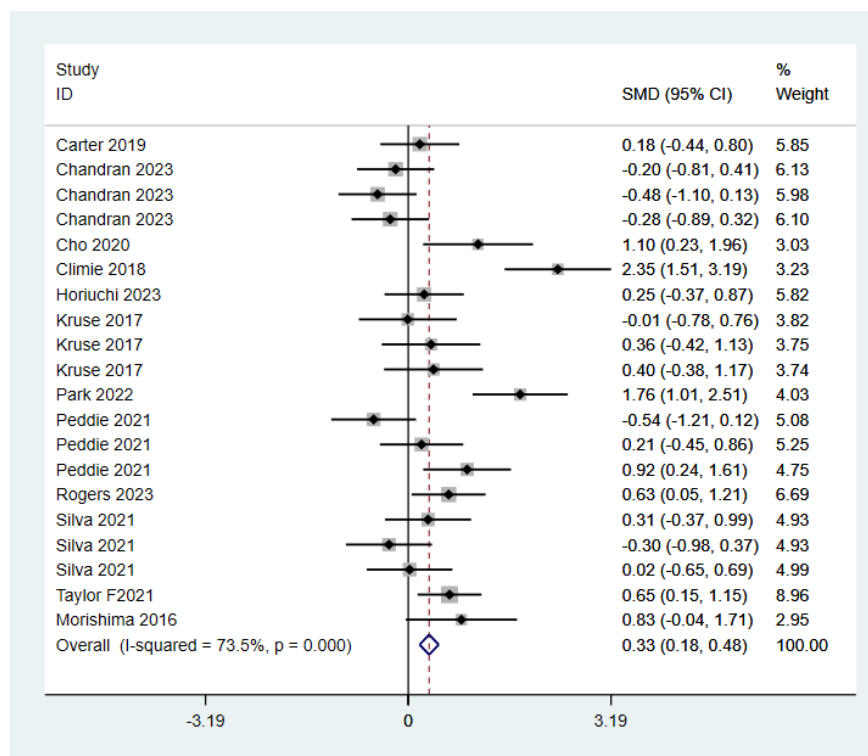


Figure S4 Pairwise Meta-analysis of sedentary interruption Interventions on Mean Arterial Shear Rate.

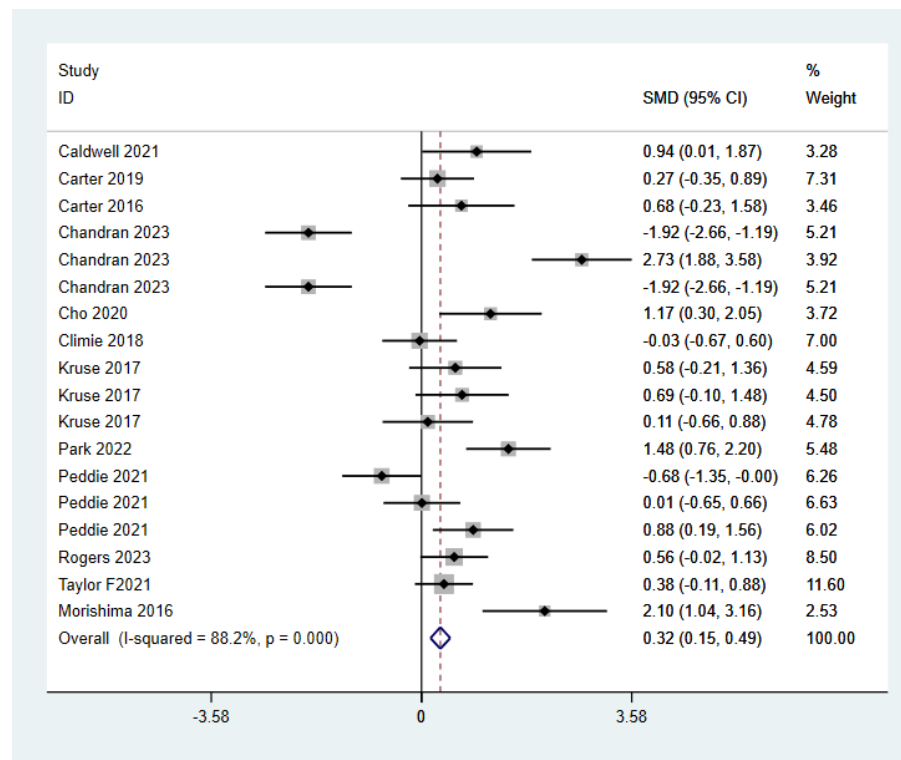


Figure S5 Pairwise Meta-analysis of sedentary interruption Interventions on Flow-Mediated Dilation%.

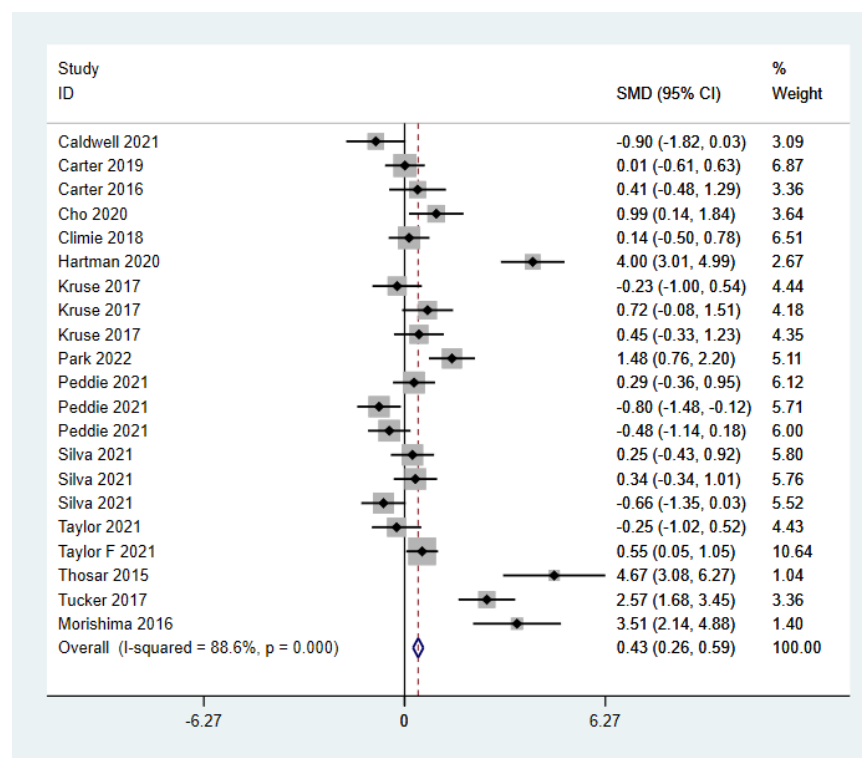


Figure S6 Pairwise Meta-analysis of sedentary interruption Interventions on Carotid-to-radial PWV.

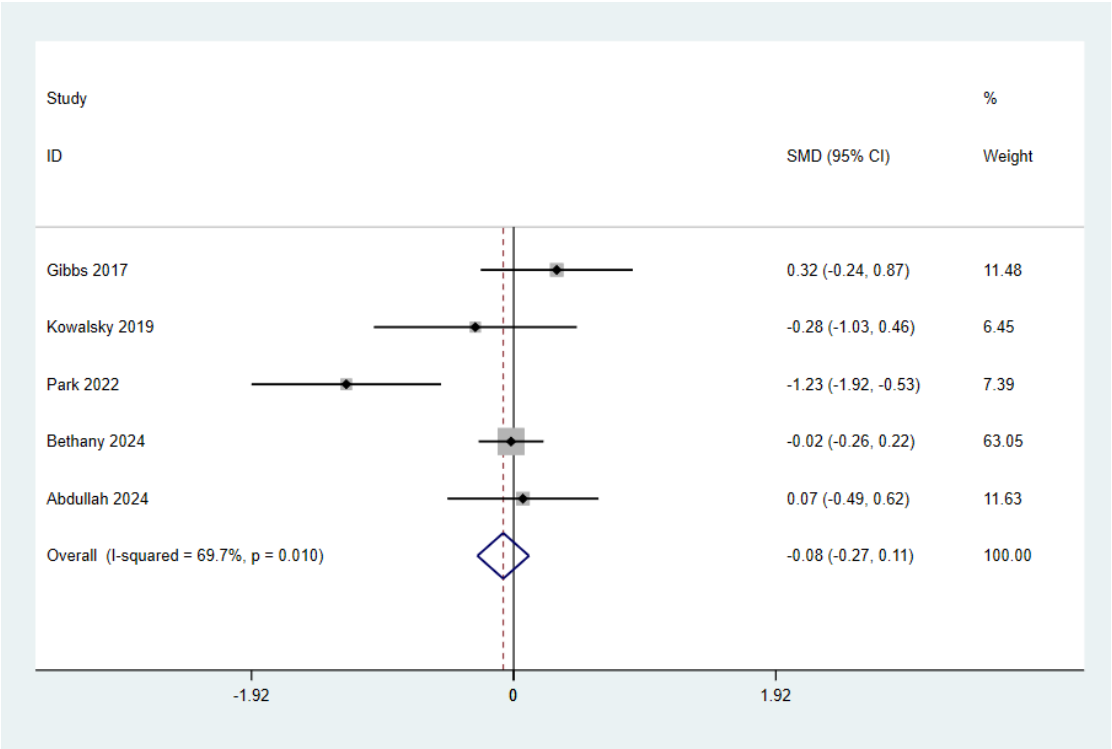


Figure S7 Pairwise Meta-analysis of sedentary interruption Interventions on Carotid-to-ankle PWV.

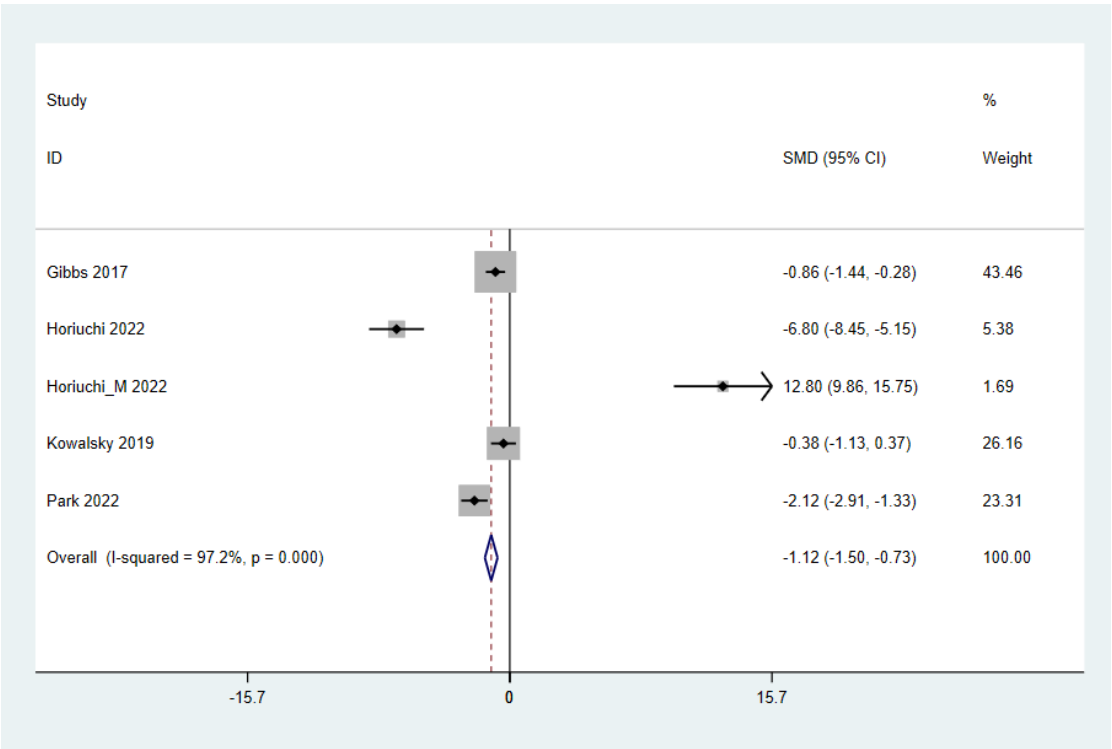
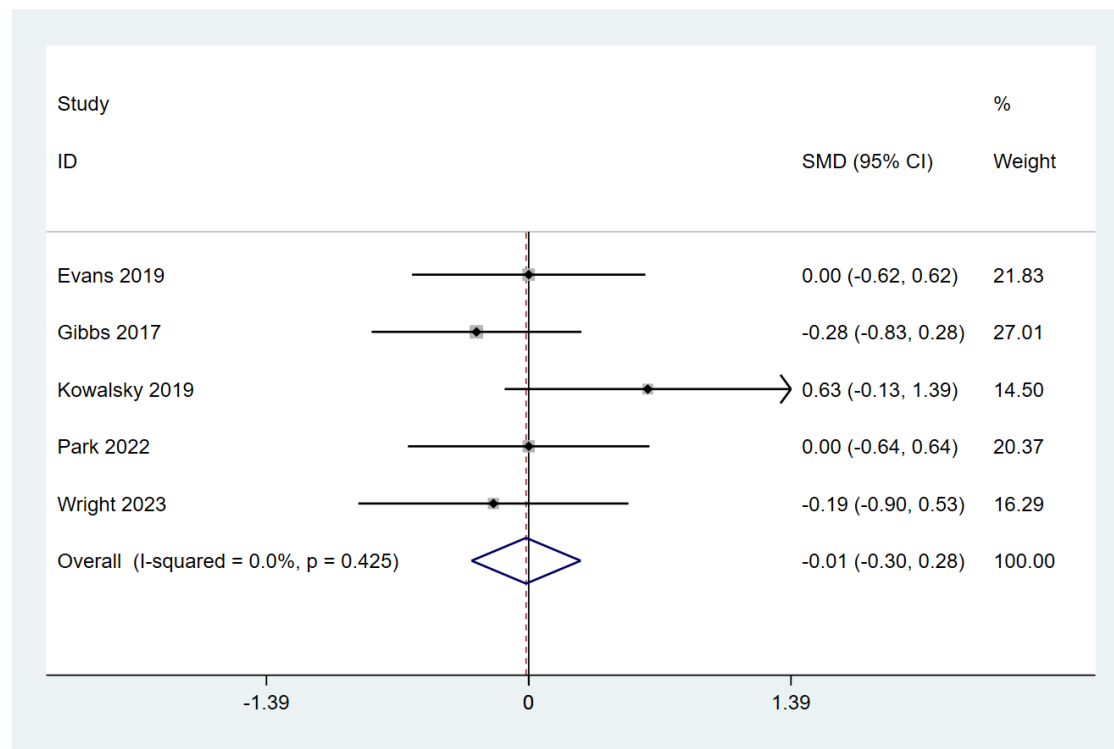


Figure S8 Pairwise Meta-analysis of sedentary interruption Interventions on Carotid-to- femoral PWV.



Supplementary reference

1. Caldwell HG, Coombs GB, Rafiei H, Ainslie PN, Little JP. Hourly staircase sprinting exercise "snacks" improve femoral artery shear patterns but not flow-mediated dilation or cerebrovascular regulation: a pilot study. *Physiologie appliquee, nutrition et metabolisme [Applied physiology, nutrition, and metabolism]*. 2021;46(5):521 - 9.
2. Carter SE, Draijer R, Holder SM, Brown L, Thijssen DHJ, Hopkins ND. Regular walking breaks prevent the decline in cerebral blood flow associated with prolonged sitting. *Journal of applied physiology (Bethesda, Md : 1985)*. 2018;125(3):790 - 8.
3. Carter SE, Draijer R, Holder SM, Brown L, Thijssen DHJ, Hopkins ND. Effect of different walking break strategies on superficial femoral artery endothelial function. *Physiological reports*. 2019;7(16):e14190.
4. Carter SE, Gladwell VF. Effect of breaking up sedentary time with callisthenics on endothelial function. *Journal of Sports Sciences*. 2017;35(15):1508-14.
5. Chandran O, Shruthi P, Sukumar S, Kadavigere R, Chakravarthy K, Rao CR, et al. Effects of physical activity breaks during prolonged sitting on vascular and executive functiondA randomised cross-over trial. *Journal of Taibah University Medical Sciences*. 2023;18(5):1065-75.
6. Cho MJ, Bunsawat K, Kim HJ, Yoon ES, Jae SY. The acute effects of interrupting prolonged sitting with stair climbing on vascular and metabolic function after a high-fat meal. *European journal of applied physiology*. 2020;120(4):829 - 39.
7. Climie RE, Wheeler MJ, Grace M, Lambert EA, Cohen N, Owen N, et al. SIMPLE INTERMITTENT RESISTANCE ACTIVITY MITIGATES THE DETRIMENTAL EFFECT OF PROLONGED UNBROKEN SITTING ON ARTERIAL FUNCTION IN OVERWEIGHT AND OBESE ADULTS. *Journal of applied physiology (Bethesda, Md : 1985)*. 2018;125(6):1787 - 94.
8. Evans WS, Stoner L, Willey Q, Kelsch E, Credeur DP, Hanson ED. Local exercise does not prevent the aortic stiffening response to acute prolonged sitting: a randomized crossover trial. *Journal of applied physiology (Bethesda, Md : 1985)*. 2019;127(3):781 - 7.
9. Gibbs BB, Kowalsky RJ, Perdomo SJ, Taormina JM, Balzer JR, Jakicic JM. Effect of alternating standing and sitting on blood pressure and pulse wave velocity during a simulated workday in adults with overweight/obesity. *Journal of Hypertension*. 2017;35(12):2411-8.
10. Hartman YAW, Tillmans LCM, Benschop DL, Hermans ANL, Nijssen KMR, Eijsvogels TMH, et al. Long-Term and Acute Benefits of Reduced Sitting on Vascular Flow and Function. *Med Sci Sports Exerc*. 2021;53(2):341-50.
11. Horiuchi M, Pomeroy A, Horiuchi Y, Stone K, Stoner L. Effects of intermittent exercise during prolonged sitting on executive function, cerebrovascular, and psychological response: a randomized crossover trial. *Journal of applied physiology (Bethesda, Md : 1985)*. 2023;135(6):1421 - 30.
12. Horiuchi M, Stoner L. Blood glucose responses are associated with prolonged sitting-induced changes in arterial stiffness: a randomized crossover trial. *Blood pressure monitoring*. 2022;27(5):345 - 8.
13. Horiuchi M, Stoner L. Macrovascular and microvascular responses to prolonged sitting with and without bodyweight exercise interruptions: a randomized cross-over trial. *Vascular medicine (London, England)*. 2022;27(2):127 - 35.

14. Kowalsky RJ, Jakicic JM, Hergenroeder A, Rogers RJ, Gibbs BB. Acute cardiometabolic effects of interrupting sitting with resistance exercise breaks. *Physiologie appliquee, nutrition et metabolisme [Applied physiology, nutrition, and metabolism]*. 2019;44(10):1025 - 32.
15. Kruse NT, Hughes WE, Benzo RM, Carr LJ, Casey DP. Workplace Strategies to Prevent Sitting-induced Endothelial Dysfunction. *Medicine and science in sports and exercise*. 2018;50(4):801 - 8.
16. Morishima T, Restaino RM, Walsh LK, Kanaley JA, Fadel PJ, Padilla J. Prolonged sitting-induced leg endothelial dysfunction is prevented by fidgeting. *Am J Physiol Heart Circ Physiol*. 2016;311(1):H177-82.
17. Park SY, Wooden TK, Pekas EJ, Anderson CP, Yadav SK, Slivka DR, et al. Effects of passive and active leg movements to interrupt sitting in mild hypercapnia on cardiovascular function in healthy adults. *J Appl Physiol* (1985). 2022;132(3):874-87.
18. Peddie MC, Kessell C, Bergen T, Gibbons TD, Campbell HA, Cotter JD, et al. The effects of prolonged sitting, prolonged standing, and activity breaks on vascular function, and postprandial glucose and insulin responses: a randomised crossover trial. *PloS one*. 2021;16(1):e0244841.
19. Rogers EM, Banks NF, Trachta ER, Wolf MS, Berry AC, Stanhewicz AE, et al. Resistance exercise breaks during prolonged sitting augment the blood flow response to a subsequent oral glucose load in sedentary adults. *Exp Physiol*. 2024.
20. Silva GO, Carvalho JF, Kanegusuku H, Farah BQ, Correia MA, Ritti-Dias RM. Acute effects of breaking up sitting time with isometric exercise on cardiovascular health: Randomized crossover trial. *Scandinavian Journal of Medicine & Science in Sports*. 2021;31(11):2044-54.
21. Stoner L, Willey Q, Evans WS, Burnet K, Credeur DP, Fryer S, et al. Effects of acute prolonged sitting on cerebral perfusion and executive function in young adults: a randomized cross-over trial. *Psychophysiology*. 2019;56(12):e13457.
22. Taylor FC, Dunstan DW, Homer AR, Dempsey PC, Kingwell BA, Climie RE, et al. Acute effects of interrupting prolonged sitting on vascular function in type 2 diabetes. *Am J Physiol Heart Circ Physiol*. 2021;320(1):H393-h403.
23. Taylor FC, Dunstan DW, Fletcher E, Townsend MK, Larsen RN, Rickards K, et al. Interrupting Prolonged Sitting and Endothelial Function in Polycystic Ovary Syndrome. *Med Sci Sports Exerc*. 2021;53(3):479-86.
24. Thosar SS, Bielko SL, Mather KJ, Johnston JD, Wallace JP. Effect of prolonged sitting and breaks in sitting time on endothelial function. *Medicine and science in sports and exercise*. 2015;47(4):843 - 9.
25. Tucker WJ, Sawyer BJ, Jarrett CL, Bhammar DM, Ryder JR, Angadi SS, et al. High-intensity interval exercise attenuates but does not eliminate endothelial dysfunction after a fast food meal. *American journal of physiology Heart and circulatory physiology*. 2018;314(2):H188 - H94.
26. Wheeler MJ, Dunstan DW, Smith B, Smithl KJ, Scheer A, Lewis J, et al. Morning exercise mitigates the impact of prolonged sitting on cerebral blood flow in older adults. *Journal of Applied Physiology*. 2019;126(4):1049-55.
27. Wright A, Stavres J, Galloway R, Donahue P, Sha Z, McCoy S. Aortic stiffness increases during prolonged sitting independent of intermittent standing or prior exercise. *European journal of applied physiology*. 2023;123(3):533 - 46.