Supplemental Online Content

Szeto K, Singh B, Gower B, et al. Interventions using wearable activity trackers to improve patient physical activity and other outcomes in adults who are hospitalized: a systematic review and meta-analysis. *JAMA Netw Open*. 2023;6(6):e2318478. doi:10.1001/jamanetworkopen.2023.18478

eFigure 1. Subgroup Meta-Analyses

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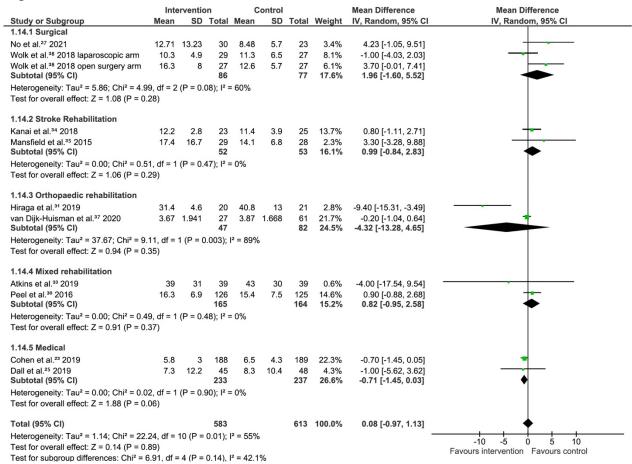
eTable 4. Reason for Exclusion of Studies Screened at Full Text

This supplemental material has been provided by the authors to give readers additional information about their work.

eFigure 1. Subgroup Meta-Analyses eFigure 1.1. Subgroup analysis for WAT intervention association with overall physical activity

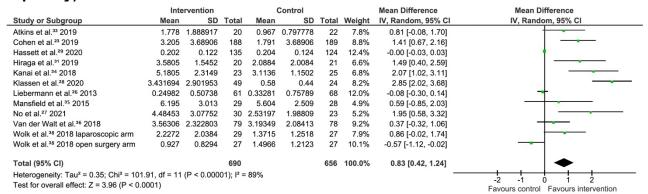
		itervention			Control			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% C	I IV, Random, 95% CI
I.1.1 Surgical patients									
iebermann et al.26 2013	249.82	507.38	64	332.81	757.89	68	7.8%	-0.13 [-0.47, 0.21]	
lo et al. ²⁷ 2021	4,484.53	3,077.52		2,531.97		23	5.5%	0.72 [0.16, 1.28]	
Volk et al.38 2018 laparoscopic arm	2,227.2	2,038.4	29	1,371.5		27	5.8%	0.49 [-0.04, 1.03]	
Volk et al. ³⁸ 2018 open surgery arm subtotal (95% CI)	927	829.4	27 150	1,496.6	1,212.33	27 145	5.7% 24.8 %	-0.54 [-1.08, 0.00] 0.12 [-0.40, 0.64]	
leterogeneity: Tau² = 0.22; Chi² = 13. est for overall effect: Z = 0.47 (P = 0.		$= 0.003$); $I^2 = 78$	3%						
.1.2 Stroke rehabilitation									
anai et al.34 2018	5,180.5	2,314.9	23	3,113.6	1,150.9	25	5.1%	1.13 [0.51, 1.74]	
Classen et al.28 2020	3,431.694	2,901.95318	49	580	440	24	5.9%	1.18 [0.65, 1.70]	
lansfield et al. ³⁵ 2015 ubtotal (95% CI)	6,195	3,013	29 101	5,604	2,509	28 77	5.9% 16.8 %	0.21 [-0.31, 0.73] 0.83 [0.19, 1.47]	
leterogeneity: $Tau^2 = 0.24$; $Chi^2 = 7.9$ est for overall effect: $Z = 2.55$ (P = 0.		: 0.02); I ² = 75%							
.1.3 Orthopaedic rehabilitation									
liraga et al.31 2019	3,580.5	1,545.2	20	2,088.4	2,008.3	21	4.9%	0.81 [0.17, 1.45]	
an der Walt et al.36 2018	3,563.06	2,322.803	79	3,193.49	2,084.13	78	8.1%	0.17 [-0.15, 0.48]	
an Dijk-Huisman et al.³ ⁷ 2020 ubtotal (95% CI)	102.99	46.757	23 122	70.896	46.74	61 160	6.2% 19.2 %	0.68 [0.19, 1.17] 0.49 [0.07, 0.92]	
leterogeneity: $Tau^2 = 0.08$; $Chi^2 = 4.9$ lest for overall effect: $Z = 2.26$ (P = 0.	,	= 0.08); I ² = 60%							
1.1.4 Mixed rehabilitation									
atkins et al.33 2019	1.778	1,888.916757	20	967	797.778	22	5.0%	0.56 [-0.06, 1.18]	
lassett et al.29 2020	2,892	2,144	135	2,865	2,565	141	8.9%	0.01 [-0.22, 0.25]	
eel et al.30 2016	24	26.1	126	20.6	21.7	125	8.8%	0.14 [-0.11, 0.39]	
ubtotal (95% CI)			281			288	22.8%	0.12 [-0.08, 0.33]	◆
leterogeneity: $Tau^2 = 0.01$; $Chi^2 = 2.7$ est for overall effect: $Z = 1.17$ (P = 0.		= 0.25); I ² = 27%							
.1.5 Medical									1000
Cohen et al. ²³ 2019	3,205	3,689.06	188	1,791	3,689.06	189	9.3%	0.38 [0.18, 0.59]	
oall et al. ²⁵ 2019 Subtotal (95% CI)	81	118.16	45 233	64	230.74	48 237	7.1% 16.4 %	0.09 [-0.32, 0.50] 0.29 [0.03, 0.56]	•
leterogeneity: $Tau^2 = 0.02$; $Chi^2 = 1.5$ est for overall effect: $Z = 2.17$ (P = 0.		: 0.21); I ² = 37%							
otal (95% CI)			887			907	100.0%	0.35 [0.15, 0.54]	•
Heterogeneity: Tau² = 0.09; Chi² = 50. Fest for overall effect: Z = 3.49 (P = 0. Fest for subgroup differences: Chi² = 6	0005)								-2 -1 0 1 Favours control Favours intervention

eFigure 1.2. Subgroup Analysis for WAT Intervention Association With Length of Stay

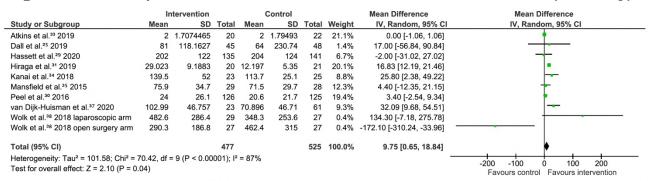


eFigure 2. Forest Plot Meta-Analyses for Different Physical Activity Outcomes

eFigure 2.1. Forest plot of WAT intervention association with daily steps (per 1000 steps/day)

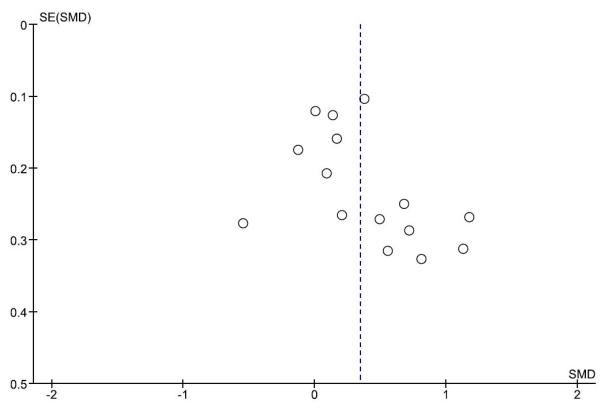


eFigure 2.2. Forest plot of WAT intervention association with active time (mins/day)

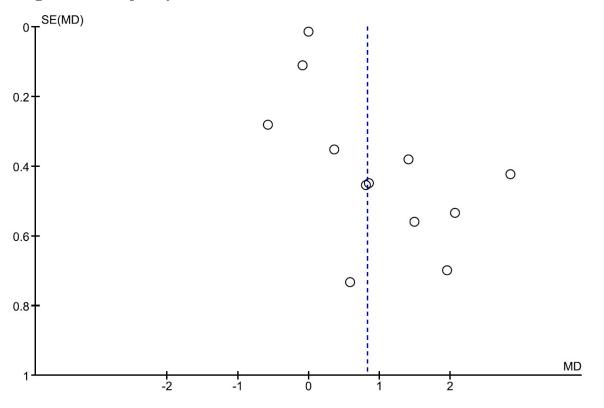


eFigure 3. Funnel Plot Analyses

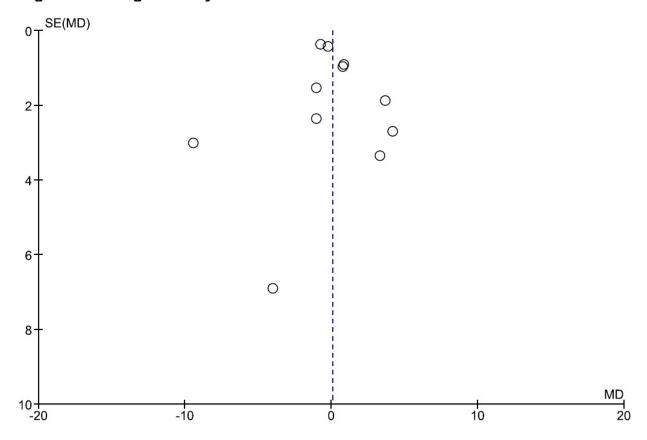
eFigure 3.1. Overall physical activity



eFigure 3.2 Daily step count



eFigure 3.3. Length of stay



eTable 1: Search Strategies

OVID MEDLINE Search date: 16/03/2022

Number of results: 2416

#	Searches
1	patient*.mp.
2	(hospital* or (hospital adj3 home) or (home adj2 hospital)).mp.
3	exp Inpatients/
4	exp Patient Admission/
5	exp Hospitalization/
6	exp Hospital Medicine/
7	exp Home Care services/
8	1 or 2 or 3 or 4 or 5 or 6 or 7
9	((fit* or activity) adj1 (monitor* or track* or sens* or band*)).mp.
10	(step count* or stepcount* or ((smart or sport*) adj1 watch)).mp.
11	(acceleromet* or pedomet*).mp.
12	(Fitbit* or apple watch* or garmin* or jawbone* or polar* or activpal* or stepwatch or
	Samsung watch* or geneactiv* or sensewear* or actigraph* or oura* or whoop* or whitings*
	or xiaomi*).mp.
13	exp Fitness Trackers/
14	exp Accelerometry/
15	9 or 10 or 11 or 12 or 13 or 14
16	(trial* or intervention or RCT or nRCT or (randomi* adj2 trial) or ((nonrandomi* or non
	randomi*) adj2 trial) or ((quasirandomi* or quasi randomi*) adj2 trial) or pilot or
	feasibility).mp.
17	exp Randomized Controlled Trial/
18	16 or 17
19	(physical adj1 (activ* or mobil* or exercise)).mp.
20	(sedentary or inactiv* or (physical* adj1 (inactiv* or immobil*)) or sitting or bed rest or time
	in bed).mp.
21	(step* adj1 (count or daily)).mp.
22	exp Exercise/
23	19 or 20 or 21 or 22
24	8 and 15 and 18 and 23

EMBASE and EMCARE

Search date: 16/03/2022

Number of results EMBASE: 4948 Number of results EMCARE: 1444

#	Searches
1	patient*.mp.
2	(hospital* or (hospital adj3 home) or (home adj2 hospital)).mp.
3	exp hospital patient/
4	exp hospital admission/
5	exp Hospitalization/
6	hospital management/ or military hospital/ or hospital care/ or teaching hospital/ or geriatric hospital/ or general hospital/ or hospital service/ or community hospital/ or critical access hospital/ or private hospital/ or aged hospital patient/ or rural hospital/ or university hospital/ or urban hospital/ or hospital department/ or mental hospital/ or burn care hospital/ or non profit hospital/ or public hospital/ or field hospital/ or low volume hospital/
7	exp home care/
8	1 or 2 or 3 or 4 or 5 or 6 or 7
9	((fit* or activity) adj1 (monitor* or track* or sens* or band*)).mp.

10	(step count* or stepcount* or ((smart or sport*) adj1 watch)).mp.
11	(acceleromet* or pedomet*).mp.
12	(Fitbit* or apple watch* or garmin* or jawbone* or polar* or activpal* or stepwatch or Samsung watch* or geneactiv* or sensewear* or actigraph* or oura* or whoop* or whitings*
	or xiaomi*).mp.
13	exp smart watch/
14	exp activity tracker/
15	exp accelerometer/ or exp pedometer/
16	9 or 10 or 11 or 12 or 13 or 14 or 15
17	(trial* or intervention or RCT or nRCT or (randomi* adj2 trial) or ((nonrandomi* or non
	randomi*) adj2 trial) or ((quasirandomi* or quasi randomi*) adj2 trial) or pilot or
	feasibility).mp.
18	exp clinical trial/ or exp randomized controlled trial/
19	17 or 18
20	(physical adj1 (activ* or mobil* or exercise)).mp.
21	(sedentary or inactiv* or (physical* adj1 (inactiv* or immobil*)) or sitting or bed rest or time
	in bed).mp.
22	(step* adj1 (count or daily)).mp.
23	exp physical activity/ or "physical activity, capacity and performance"/
24	20 or 21 or 22 or 23
25	8 and 16 and 19 and 24

CINAHL

Search date: 16/03/2022 Number of results: 1134

#	Searches
1	(TI (inpatient* or "in patient"* or in-patient* or patient*)) OR (AB (inpatient* or "in patient"* or
	in-patient* or patient*))
2	(TI (hospital* or (hospital n3 home) or (home n2 hospital))) OR (AB (hospital* or (hospital
	n3 home) or (home n2 hospital)))
3	(MH "Inpatients")
4	(MH "Patient Admission")
5	(MH "Hospitalization")
6	(MH "Hospital Medicine")
7	(MH "Home Health Care")
8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
9	(TI (fit* or activity) n1 (monitor* or track* or sens* or band*)) OR (AB (fit* or activity) n1
	(monitor* or track* or sens* or band*))
10	(TI (step count* or stepcount* or ((smart or sport*) n1 watch))) OR (AB (step count* or
	stepcount* or ((smart or sport*) n1 watch)))
11	(TI (acceleromet* or pedomet*)) OR (AB (acceleromet* or pedomet*))
12	(TI (fitbit* or "apple watch" or garmin* or jawbone* or polar* or activpal* or stepwatch or
	samsung watch* or geneactiv* or sensewear* or actigraph* or oura* or whoop* or whitings*
	or xiaomi*)) OR (AB (fitbit* or "apple watch" or garmin* or jawbone* or polar* or activpal* or
	stepwatch or samsung watch* or geneactiv* or sensewear* or actigraph* or oura* or
40	whoop* or whitings* or xiaomi*))
13	(MH "Wearable sensors")
14 15	(MH "Fitness trackers")
16	(MH "Accelerometers") OR (MH "Accelerometry") OR (MH "Pedometers") S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15
17	
17	(TI (trial* or intervention or RCT or nRCT or (randomi* n2 trial) or ((nonrandomi* or "non randomi*" or non-randomi*) n2 trial) or ((quasirandomi* or "quasi randomi*" or quasi-
	randomi*) n2 trial) or pilot or feasibility)) OR (AB (trial* or intervention or RCT or nRCT or
	(randomi* n2 trial) or ((nonrandomi* or "non randomi*" or non-randomi*) n2 trial) or
	((quasirandomi* or "quasi randomi*" or quasi-randomi*) n2 trial) or pilot or feasibility))
18	(MH "Experimental Studies+")
19	S17 OR S18
	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -

20	(TI (physical n1 (activ* or mobil* or exercise)) OR (AB (physical n1 (activ* or mobil* or
	exercise))
21	(TI (sedentary or inactiv* or (physical* n1 (inactiv* or immobil*)) or sitting or bed rest or time
	in bed) OR (AB (sedentary or inactiv* or (physical* n1 (inactiv* or immobil*)) or sitting or
	bed rest or time in bed)
22	(TI (step* n1 (count or daily))) OR (AB (step* n1 (count or daily)))
23	(MH "Physical Activity")
24	S20 OR S21 OR S22 OR S23
25	S8 AND S16 AND S19 AND S24

SportsDiscuss

Search date: 16/03/2022 Number of results: 277

#	Coarches
#	Searches
1	(TI (inpatient* or "in patient"* or in-patient* or patient*)) OR (AB (inpatient* or "in patient"* or in-patient* or patient*)) OR (KW (inpatient* or "in patient"* or in-patient* or patient*))
2	(TI (hospital* or (hospital n3 home) or (home n2 hospital))) OR (AB (hospital* or (hospital
	n3 home) or (home n2 hospital))) OR (KW (hospital* or (hospital n3 home) or (home n2
	hospital)))
3	(DE "PATIENTS")
4	(DE "PATIENT care")
5	(DE "HOSPITAL CARE")
6	(DE "MEDICAL CARE")
7	S1 OR S2 OR S3 OR S4 OR S5 OR S6
8	(TI (fit* or activity) n1 (monitor* or track* or sens* or band*)) OR (AB (fit* or activity) n1
	(monitor* or track* or sens* or band*)) OR (KW (fit* or activity) n1 (monitor* or track* or
	sens* or band*))
9	(TI (step count* or stepcount* or ((smart or sport*) n1 watch))) OR (AB (step count* or
	stepcount* or ((smart or sport*) n1 watch))) OR (KW (step count* or stepcount* or ((smart
	or sport*) n1 watch)))
10	(TI (acceleromet* or pedomet*)) OR (AB (acceleromet* or pedomet*)) OR (KW
	(acceleromet* or pedomet*))
11	(TI (fitbit* or "apple watch" or garmin* or jawbone* or polar* or activpal* or stepwatch or
	samsung watch* or geneactiv* or sensewear* or actigraph* or oura* or whoop* or whitings*
	or xiaomi*)) OR (AB (fitbit* or "apple watch" or garmin* or jawbone* or polar* or activpal* or
	stepwatch or samsung watch* or geneactiv* or sensewear* or actigraph* or oura* or
	whoop* or whitings* or xiaomi*)) OR (KW (fitbit* or "apple watch" or garmin* or jawbone* or
	polar* or activpal* or stepwatch or samsung watch* or geneactiv* or sensewear* or
	actigraph* or oura* or whoop* or whitings* or xiaomi*))
12	(DE "ACCELEROMETERS")
13	(DE "PEDOMETERS")
14	S8 OR S9 OR S10 OR S11 OR S12 OR S13
15	(TI (trial* or intervention or RCT or nRCT or (randomi* n2 trial) or ((nonrandomi* or "non
	randomi*" or non-randomi*) n2 trial) or ((quasirandomi* or "quasi randomi*" or quasi-
	randomi*) n2 trial) or pilot or feasibility)) OR (AB (trial* or intervention or RCT or nRCT or
	(randomi* n2 trial) or ((nonrandomi* or "non randomi*" or non-randomi*) n2 trial) or
	((quasirandomi* or "quasi randomi*" or quasi-randomi*) n2 trial) or pilot or feasibility)) OR
	(KW (trial* or intervention or RCT or nRCT or (randomi* n2 trial) or ((nonrandomi* or "non
	randomi*" or non-randomi*) n2 trial) or ((quasirandomi* or "quasi randomi*" or quasi-
40	randomi*) n2 trial) or pilot or feasibility))
16	S15
17	(TI (physical n1 (activ* or mobil* or exercise)) OR (AB (physical n1 (activ* or mobil* or
18	exercise)) OR (KW (physical n1 (activ* or mobil* or exercise))
10	(TI (sedentary or inactiv* or (physical* n1 (inactiv* or immobil*)) or sitting or bed rest or time
	in bed) OR (AB (sedentary or inactiv* or (physical* n1 (inactiv* or immobil*)) or sitting or bed rest or time in bed) OR (KW (sedentary or inactiv* or (physical* n1 (inactiv* or
	immobil*)) or sitting or bed rest or time in bed)

19	(TI (step* n1 (count or daily))) OR (AB (step* n1 (count or daily))) OR (KW (step* n1 (count
	or daily)))
20	(DE ("PHYSICAL activity" OR "PHYSICAL activity measurement"))
21	S17 OR S18 OR S19 OR S20
22	S7 AND S14 AND S16 AND S21

Scopus Search date: 16/03/2022 Number of results: 12567

#	Searches
1	TITLE-ABS-KEY (patient*) or (hospital* or (hospital w/2 home) or (home w/2 hospital))
2	TITLE-ABS-KEY ((fit* or activity) w/2 (monitor* or track* or sens* or band*)) or (step count* or stepcount* or ((smart or sport*) w/1 watch)) or (acceleromet* or pedomet*) or (Fitbit* or apple watch* or garmin* or jawbone* or polar* or activpal* or stepwatch or Samsung watch* or geneactiv* or sensewear* or actigraph* or oura* or whoop* or whitings* or xiaomi*)
3	TITLE-ABS-KEY (trial* or intervention or RCT or nRCT or (randomi* w/2 trial) or ((nonrandomi* or "non randomi"*) w/2 trial) or ((quasirandomi* or "quasi randomi"*) w/2 trial) or pilot or feasibility)
4	TITLE-ABS-KEY (physical w/2 (activ* or mobil* or exercise)) or (sedentary or inactiv* or (physical* w/1 (inactiv* or immobil*)) or sitting or "bed rest" or "time in bed") or (step* w/1 (count or daily))
5	#1 AND #2 AND #3 AND #4

PEDRO

Search date: 16/03/2022 Number of results: 148

Search 1					
Abstract & Title Inpatient physical activity					
Method	Clinical trial				
When searching	Match all search terms (AND)				
Search 2					
Abstract & Title	Hospital at home physical activity				
Method	Clinical trial				
When searching	Match all search terms (AND)				

eTable 2. Risk of Bias

eTable 2.1. Critical appraisal of randomized clinical trials included in the systematic review

eTable 2.1. Cr	itical appro	aisal of rande	omized clinica		•					
		T	T	JBI critic		l checklist	for random	ized contro	lled trials	1
	1. Was true randomization used for assignment of participants to treatment groups?	2. Was allocation to treatment groups concealed?	3. Were treatment groups similar at the baseline?	4. Were participants blind to treatment assignment?	5. Were those delivering treatment blind to treatment assignment?	6. Were outcomes assessors blind to treatment assignment?	7. Were treatment groups treated identically other than the intervention of interest?	8. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	9. Were participants analyzed in the groups to which they were randomized?	10. Were outcomes measured in the same way for treatment
Atkins et al.1 2019	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes
Dall et al. ² 2019	No	No	Yes	No	No	Unclear	Unclear	Yes	No	Yes
Hassett et al.3 2020	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Kanai et al.4 2018	Yes	Yes	Yes	Unclear	No	No	Yes	No	No	Yes
Klassen et al.⁵ 2020	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes
Lieberma nn et al. ⁶ 2013	Yes	Yes	Yes	Unclear	No	Unclear	Yes	Yes	No	Yes
Mansfield et al. ⁷ 2015	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Unclear	Yes
No et al. ⁸ 2021	Yes	Yes	No	No	No	No	Yes	Yes	No	Yes
Peel et al. ⁹ 2016	Yes	Yes	Yes	No	No	Yes	Unclear	No	Unclear	Yes
Van der Walt et al. ¹⁰ 2018	Yes	Yes	Yes	No	No	Unclear	Yes	Yes	Yes	Yes

Wolk et al. ¹¹ 2019	Yes	Yes	Yes	No	No	Unclear	Yes	No	Unclear	Yes
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eTable 2.2. Critical appraisal of non-randomized clinical trials included in the systematic review							
JBI critical appraisal checklist for quasi-experimental trials							
	1. Is it clear in the study what is the 'cause' and what is the 'effect'?	2. Were the participants included in any comparisons similar?	3. Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest?	4. Was there a control group?	5. Were there multiple measurements of the outcome both pre and post the intervention?	6. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	7. Were the outcomes of participants included in any comparisons measured in the same way?
Cohen et al. 12 2019	Yes	No	Unclear	Yes	Yes	Yes	Unclear
Conijn et al. ¹³ 2020	Yes	No	Yes	Yes	No	Yes	Yes
Hiraga et al. ¹⁴ 2019	Yes	Yes	Yes	Yes	Yes	No	Yes
van Dijk- Huisman et al. ¹⁵ 2020	Yes	No	Yes	Yes	No	Yes	Yes

eTable 3. Leave-1-Out Sensitivity Analyses

Study removed	Result	
Overall physical activity		
Atkins et al. ¹ 2019	(SMD=0.33; 95% CI, 0.13 to 0.54; p=0.001; <i>I</i> ² =74%)	
Cohen et al. ¹² 2019	(SMD=0.35; 95% CI, 0.13 to 0.57; p=0.002; <i>I</i> ² =73%)	
Dall et al. ² 2019	(SMD=0.37; 95% CI, 0.16 to 0.57; p=0.0005; <i>I</i> ² =74%)	
Hassett et al. ³ 2020	(SMD=0.38; 95% CI, 0.17 to 0.59; p=0.0003; <i>I</i> ² =71%)	
Hiraga et al. ¹⁴ 2019	(SMD=0.32; 95% CI, 0.12 to 0.52; p=0.001; I ² =72%)	
Kanai et al.⁴ 2018	(SMD=0.30; 95% CI, 0.11 to 0.49; p=0.002; I ² =69%)	
Klassen et al. ⁵ 2020	(SMD=0.28; 95% CI, 0.11 to 0.46; p=0.002; I ² =66%)	
Liebermann et al. ⁶ 2013	(SMD=0.38; 95% CI, 0.18 to 0.58; p=0.0002; <i>I</i> ² =71%)	
Mansfield et al. ⁷ 2015	(SMD=0.36; 95% CI, 0.15 to 0.56; p=0.0006; I ² =74%)	

No et al. ⁸ 2021	(SMD=0.32; 95% CI, 0.12 to 0.52; p=0.001; I ² =73%)
Peel et al. ⁹ 2016	(SMD=0.37; 95% CI, 0.15 to 0.58; p=0.0007; <i>I</i> ² =73%)
Van der Walt et al.¹º 2018	(SMD=0.36; 95% CI, 0.15 to 0.58; p=0.0007; <i>I</i> ² =74%)
Van Dijk-Huisman et al. ¹⁵ 2020	(SMD=0.32; 95% CI, 0.12 to 0.52; p=0.0012 <i>I</i> ² =72%)
Wolk open surgery et al. ¹¹ 2019	(SMD=0.39; 95% CI, 0.20 to 0.58; p<0.0001; I ² =69%)
Wolk laparoscopic et al. ¹¹ 2019	(SMD=0.34; 95% CI, 0.13 to 0.54; p=0.001; <i>I</i> ² =74%)
Daily step count	
Atkins et al. ¹ 2019	(MD=829.02; 95% CI, 400.83 to 1257.22; p=0.0001; <i>I</i> ² =90%)
Cohen et al. ¹² 2019	(MD=756.56; 95% CI, 342.79 to 1170.33; p=0.0003; <i>I</i> ² =89%)
Hassett et al. ³ 2020	(MD=1015.07; 95% CI, 372.09 to 1658.05; p=0.002, <i>I</i> ² =89%)
Hiraga et al. ¹⁴ 2019	(MD=773.89; 95% CI, 357.45 to 1190.33; p=0.0003; <i>I</i> ² =89%)
Kanai et al.⁴ 2018	(MD=719.19; 95% CI, 316.01 to 1122.37; p=0.0005; <i>I</i> ² =89%)
Klassen et al.⁵ 2020	(MD=563.48; 95% CI, 218.31 to 908.65; p=0.001; <i>I</i> ² =82%)
Liebermann et al. ⁶ 2013	(MD=1016.49; 95% CI, 404.89 to 1628.1; p=0.001; I ² =90%)
Mansfield et al. ⁷ 2015	(MD=840.49; 95% CI, 418.11 to 1262.87; p<0.0001; <i>I</i> ² =90%)
No et al. ⁸ 2021	(MD=757.76; 95% CI, 346.94 to 1168.58; p=0.0003; <i>I</i> ² =89%)
Van der Walt et al. ¹⁰ 2018	(MD=879.97; 95% CI, 440.97 to 1318.97; p<0.0003; <i>l</i> ² =90%)
Wolk open surgery et al. ¹¹ 2019	(MD=990.28; 95% CI, 548.92 to 1431.64; p<0.0003; <i>I</i> ² =90%)
Wolk laparoscopic et al. ¹¹ 2019	(MD=824.69; 95% CI, 396.94 to 1252.44; p=0.0002; <i>I</i> ² =90%)
Active time (mins/day)	
Atkins et al.1 2019	(MD=12.39; 95% CI, 1.91 to 22.86; p=0.02; <i>I</i> ² =71%)
Dall et al. ² 2019	(MD=9.66; 95% CI, 0.45 to 18.87; p=0.04; <i>I</i> ² =89%)
Hassett et al. ³ 2020	(MD=10.63; 95% CI, 1.11 to 20.16; p=0.03; I ² =89%)
Hiraga et al. ¹⁴ 2019	(MD=6.85; 95% CI, -1.43 to 15.14; p=0.11; <i>I</i> ² =66%)
Kanai et al.⁴ 2018	(MD=8.18; 95% CI, -1.22 to 17.58; p=0.09; <i>I</i> ² =88%)
Mansfield et al. ⁷ 2015	(MD=10.57; 95% CI, 0.64 to 20.49; p=0.04; I ² =89%)
Peel et al. ⁹ 2016	(MD=11.58; 95% CI, -0.15 to 23.31.16; p=0.05; <i>I</i> ² =89%)
Van Dijk-Huisman et al. ¹⁵ 2020	(MD=7.44; 95% CI, -1.79 to 16.67; p=0.11; <i>I</i> ² =87%)
Wolk open surgery et al. ¹¹ 2019	(MD=10.39; 95% CI, 1.57 to 19.22; p=0.02; I^2 =88%)
Wolk laparoscopic et al. ¹¹ 2019	(MD=9.22; 95% CI, 0.24 to 18.19; p=0.04; I^2 =88%)
Sedentary behavior (mins/day)	
Conijn et al. ¹³ 2020	(MD= -17.00; 95% CI, -90.84 to 56.84; p=0.65; <i>I</i> ² =N/A%)
Dall et al. ² 2019	(MD= -37.25; 95% CI, -60.27 to -14.23; p=0.002; <i>I</i> ² =N/A%)
Objective measures of physical	function
Atkins et al. ¹ 2019	(SMD=0.33; 95% CI, 0.13 to 0.53; p=0.001; I ² =0%)
Hassett et al. ³ 2020	(SMD=0.30; 95% CI, 0.01 to 0.58; p=0.04; I ² =0%)
Klassen et al. ⁵ 2020	(SMD=0.28; 95% CI, 0.08 to 0.47; p=0.005; I ² =0%)
Mansfield et al. ⁷ 2015	(SMD=0.27; 95% CI, 0.08 to 0.46; p=0.006; I ² =0%)
Mental Health	
Hassett et al. ³ 2020	(SMD= -0.44; 95% CI, -0.91 to 0.02; p=0.06; <i>I</i> ² =20%)
Hiraga (A) et al. ¹⁴ 2019	(SMD= -0.01; 95% CI, -0.34 to 0.31; p=0.94; <i>I</i> ² =35%)
Hiraga (B) et al. ¹⁴ 2019	(SMD= -0.23; 95% CI, -0.80 to 0.33; p=0.42; <i>I</i> ² =75%)
Klassen et al. ⁵ 2020	(SMD= -0.33; 95% CI, -1.09 to 0.43; p=0.40; <i>I</i> ² =73%)

Pain	
Hassett et al. ³ 2020	(SMD= -1.76; 95% CI, -6.34 to 2.81; p=0.45; <i>I</i> ² =98%)
Hiraga et al.¹⁴ 2019	(SMD=0.19; 95% CI, -0.39 to 0.77; p=0.53; <i>I</i> ² =74%)
No et al. ⁸ 2021	(SMD= -2.05; 95% CI, -6.04 to 1.93; p=0.31; <i>I</i> ² =98%)
Length of stay (days)	
Atkins et al. ¹ 2019	(MD=0.11; 95% CI, -0.97 to 1.18; p=0.85; <i>I</i> ² =59%)
Cohen et al. ¹² 2019	(MD=0.29; 95% CI, -1.10 to 1.69; p=0.68; <i>I</i> ² =54%)
Dall et al. ² 2019	(MD=0.13; 95% CI, -0.97 to 1.24; p=0.81; I^2 =59%)
Hiraga et al. ¹⁴ 2019	(MD=0.13; 95% CI, -0.65 to 0.91; p=0.75; <i>I</i> ² =31%)
Kanai et al.⁴ 2018	(MD= -0.03; 95% CI, -1.20 to 1.14; p=0.96; <i>I</i> ² =57%)
Mansfield et al. ⁷ 2015	(MD=0.00; 95% CI, -1.06 to 1.06; p=1.00; I^2 =57%)
No et al. ⁸ 2021	(MD= -0.07; 95% CI, -1.09 to 0.95; p=0.89; <i>I</i> ² =54%)
Peel et al. ⁹ 2016	(MD= -0.06; 95% CI, -1.23 to 1.11; p=0.92; <i>l</i> ² =56%)
Van Dijk-Huisman et al. ¹⁵ 2020	(MD=0.17; 95% CI, -1.29 to 1.64; p=0.82; <i>I</i> ² =60%)
Wolk open surgery et al. ¹¹ 2019	(MD= -0.16; 95% CI, -1.15 to 0.83; p=0.76; <i>l</i> ² =49%)
Wolk laparoscopic et al. ¹¹ 2019	(MD=0.18; 95% CI, -0.95 to 1.32; p=0.75; l ² =59%)
Risk of readmission	
Dall et al. ² 2019	(RR=0.74; 95% CI, 0.32 to 1.72; p=0.49; <i>I</i> ² =0%)
Peel et al.9 2016	(RR=1.31; 95% CI, 0.80 to 2.12; p=0.28; <i>l</i> ² =0%)
Van der Walt et al.¹º 2018	(RR=1.09; 95% CI, 0.62 to 1.91; p=0.77; <i>I</i> ² =31%)

eTable 4. Reason for Exclusion of Studies Screened at Full Text

Author and year	Reason for exclusion
Agarwal et al. 16 2016	Unsuitable study design
Ambrosio et al. ¹⁷ 2017	Unsuitable intervention
Amini et al. ¹⁸ 2021	Unsuitable intervention
Arbane et al. ¹⁹ 2014	Unsuitable intervention
Arunachalam et al. ²⁰ 2019	Unsuitable publication type (conference abstract, thesis)
Aruncahalam et al. ²¹ 2018	Unsuitable publication type (conference abstract, thesis)
Ashizawa et al. ²² 2022	Unsuitable comparator/control
Ashizawa et al. ²³ 2021	Unsuitable intervention
Aufwerber et al. ²⁴ 2020	Unsuitable intervention
Aunger et al. ²⁵ 2020	Unsuitable population (inc. setting)
Awad et al. ²⁶ 2012	Unsuitable publication type (conference abstract, thesis)
Bade et al. ²⁷ 2018	Unsuitable population (inc. setting)
Baker et al. ²⁸ 2020	Unsuitable publication type (conference abstract, thesis)
Balcells Vilarnau et al.29 2007	Unsuitable publication type (conference abstract, thesis)
Barkley et al. ³⁰ 2019	Unsuitable study design
Barrett et al.31 2021	Unsuitable population (inc. setting)
Baumann et al. ³² 2011	Unsuitable intervention
Brandes et al. ³³ 2018	Outcomes of interest not available
Brauer et al. ³⁴ 2022	Unsuitable intervention
Brouns et al. ³⁵ 2021	Outcomes of interest not available
Campo et al. ³⁶ 2019	Unsuitable publication type (conference abstract, thesis)
Cassidy et al. ³⁷ 2014	Unsuitable publication type (conference abstract, thesis)
Cassidy et al. ³⁸ 2014	Unsuitable publication type (conference abstract, thesis)
Celik Ince et al. ³⁹ 2021	Unsuitable population (inc. setting)
Chang et al. ⁴⁰ 2014	Unsuitable intervention
Cheville et al.41 2019	Unsuitable population (inc. setting)
Chin et al. ⁴² 2022	Unsuitable publication type (conference abstract, thesis)
Connell et al. ⁴³ 2018	Unsuitable publication type (conference abstract, thesis)
Cook et al. ⁴⁴ 2013	Unsuitable study design
Cowie et al. ⁴⁵ 2011	Unsuitable population (inc. setting)
Creel et al. ⁴⁶ 2016	Unsuitable population (inc. setting)
Cuevas-Lara et al.47 2020	Unsuitable publication type (conference abstract, thesis)
Cuevas-Lara et al.48 2022	Unsuitable intervention
Da-Silva et al. ⁴⁹ 2019	Unsuitable intervention
Darabseh et al. ⁵⁰ 2021	Unsuitable publication type (conference abstract, thesis)
de Blok et al. ⁵¹ 2006	Unsuitable population (inc. setting)
De La Torre Costa et al. ⁵² 2021	Unsuitable publication type (conference abstract, thesis)
Deenik et al. ⁵³ 2019	Unsuitable population (inc. setting)
Deenik et al. ⁵⁴ 2017	Unsuitable publication type (conference abstract, thesis)
Deenik et al. ⁵⁵ 2017	Unsuitable publication type (conference abstract, thesis)
Dehghani et al. ⁵⁶ 2021	Unsuitable population (inc. setting)
Dorsch et al. ⁵⁷ 2015	Unsuitable comparator/control
Dorsch et al. ⁵⁸ 2013	Unsuitable publication type (conference abstract, thesis)
Dorsch et al. ⁵⁹ 2014	Unsuitable publication type (conference abstract, thesis)
Edgren et al. ⁶⁰ 2015	Unsuitable population (inc. setting)
Feldman et al. ⁶¹ 2014	Unsuitable publication type (conference abstract, thesis)
Fiore et al. ⁶² 2017	Unsuitable intervention
Fleiner et al. ⁶³ 2015	Unsuitable study design
Floegel et al. ⁶⁴ 2019	Unsuitable study design
Frawley et al. ⁶⁵ 2020	Unsuitable population (inc. setting)
Freene et al.66 2020	Unsuitable study design
Fu et al. ⁶⁷ 2019	Unsuitable publication type (conference abstract, thesis)
Gabrys et al. ⁶⁸ 2017	Unsuitable comparator/control
Ganer Herman et al. ⁶⁹ 2020	Unsuitable comparator/control

Garding et al. ⁷⁰ 1988	Unsuitable population (inc. setting)
Geidl et al. ⁷¹ 2021	Outcomes of interest not available
Geidl et al. ⁷² 2017	Unsuitable publication type (conference abstract, thesis)
Graham et al. ⁷³ 2016	Unsuitable publication type (conference abstract, thesis)
Grant et al. ⁷⁴ 2018	Unsuitable publication type (conference abstract, thesis)
Hacker et al. ⁷⁵ 2020	Unsuitable publication type (conference abstract, thesis)
Hakala et al. ⁷⁶ 2021	
Hamilton et al. ⁷⁷ 2019	Unsuitable population (inc. setting)
	Unsuitable intervention
Hassett et al. 78 2019	Unsuitable publication type (conference abstract, thesis)
Henriksen et al. ⁷⁹ 2002	Unsuitable intervention
Herman et al. ⁸⁰ 2020	Unsuitable publication type (conference abstract, thesis)
Heron et al. 81 2019	Unsuitable publication type (conference abstract, thesis)
Hiraga et al. ⁸² 2022	Outcomes of interest not available
Hiraga et al. ⁸³ 2021	Unsuitable intervention
Hornby et al. ⁸⁴ 2015	Unsuitable study design
Hornikx et al. ⁸⁵ 2015	Unsuitable population (inc. setting)
Hornikx et al. ⁸⁶ 2014	Unsuitable publication type (conference abstract, thesis)
Houle et al. 88 2009	Unsuitable publication type (conference abstract, thesis)
Houle et al. 88 2011	Unsuitable population (inc. setting)
Houle et al. 89 2012	Unsuitable population (inc. setting)
Hubbard et al. 90 2016	Unsuitable population (inc. setting)
Hunka et al. ⁹¹ 2011	Unsuitable publication type (conference abstract, thesis)
Hunter et al. 92 2020	Unsuitable publication type (conference abstract, thesis)
Ifikhar et al. ⁹³ 2022	Unsuitable publication type (conference abstract, thesis)
Izawa et al. ⁹⁴ 2012	Unsuitable comparator/control
Jacot et al. ⁹⁵ 2020	Unsuitable population (inc. setting)
Jarden et al. ⁹⁶ 2016	Unsuitable population (inc. setting)
Jarosch et al. ⁹⁷ 2020	Unsuitable intervention
Jimenez-Loaisa et al. ⁹⁸ 2020	Unsuitable population (inc. setting)
Jovic et al. ⁹⁹ 2017	Unsuitable publication type (conference abstract, thesis)
Kaasa et al. 100 2015	Unsuitable publication type (conference abstract, thesis)
Kanai et al. ¹⁰¹ 2017	Unsuitable study design
Katogi ¹⁰² 2020	Unsuitable intervention
Kelly et al. ¹⁰³ 2021	Unsuitable study design
Kern et al. ¹⁰⁴ 2020	Unsuitable study design
Kerr et al. ¹⁰⁵ 2017	Unsuitable study design
Khorvash et al. ¹⁰⁶ 2020	Unsuitable population (inc. setting)
Kim et al. ¹⁰⁷ 2014	Outcomes of interest not available
Klassen et al. 108 2015	Unsuitable publication type (conference abstract, thesis)
Konecny et al. 109 2021	Unsuitable publication type (conference abstract, thesis)
Ku et al. ¹¹⁰ 2020	Unsuitable publication type (conference abstract, thesis)
Kurebayashi et al. ¹¹¹ 2021	Unsuitable intervention
Lawrie et al. ¹¹² 2018	Outcomes of interest not available
Lee et al. ¹¹³ 2019	Unsuitable population (inc. setting)
Li et al. ¹¹⁴ 2020	Unsuitable intervention
Lim et al. ¹¹⁵ 2020	Unsuitable intervention
Lim et al. ¹¹⁶ 2018	Unsuitable publication type (conference abstract, thesis)
Loevezijn et al. ¹¹⁷ 2014	Unsuitable publication type (conference abstract, thesis)
Lorenz et al. ¹¹⁸ 2015	Unsuitable population (inc. setting)
Losina et al. ¹¹⁹ 2018	Unsuitable population (inc. setting)
Low et al. ¹²⁰ 2020	Unsuitable study design
Macht et al. 121 2016	Unsuitable publication type (conference abstract, thesis)
Magheli et al. 122 2011	Unsuitable intervention
Mansfield et al. ¹²³ 2014	Unsuitable publication type (conference abstract, thesis)
Martinez-Velilla et al. 124 2021	Unsuitable intervention
Mateo ¹²⁵ 2020	Unsuitable publication type (conference abstract, thesis)
Mayo et al. ¹²⁶ 2015	Unsuitable publication type (conference abstract, thesis)
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Mehta et al. ¹²⁷ 2020	Unsuitable population (inc. setting)
Meng et al. 128 2016	Unsuitable intervention
Metcalf et al. ¹²⁹ 2019	Unsuitable study design
Miller et al. 130 2005	Unsuitable study design Unsuitable publication type (conference abstract, thesis)
Moore et al. ¹³¹ 2020	Unsuitable intervention
Moreno et al. 132 2019	
	Unsuitable intervention
Mueller et al. 133 2017	Unsuitable publication type (conference abstract, thesis)
Murff et al. ¹³⁴ 2007	Unsuitable population (inc. setting)
Musekamp et al. 135 2019	Unsuitable intervention
Ng et al. ¹³⁶ 2021	Unsuitable study design
Ni et al. ¹³⁷ 2018	Unsuitable intervention
Nishitani-Yokoyama et al. ¹³⁸ 2019	Unsuitable population (inc. setting)
Nolan et al. 139 2017	Unsuitable population (inc. setting)
Nooijen et al. ¹⁴⁰ 2016	Unsuitable intervention
Nooijen et al. ¹⁴¹ 2017	Unsuitable population (inc. setting)
Nooijen et al. 142 2016	Unsuitable population (inc. setting)
O'Neill et al. ¹⁴³ 2018	Unsuitable population (inc. setting)
Oesch et al. 144 2017	Unsuitable intervention
Orme et al. ¹⁴⁵ 2018	Unsuitable population (inc. setting)
Ortiz-Alonso et al. 146 2020	Unsuitable intervention
Paterson et al. ¹⁴⁷ 2019	Unsuitable publication type (conference abstract, thesis)
Patterson et al. ¹⁴⁸ 2020	Unsuitable publication type (conference abstract, thesis)
Paxton et al. 149 2018	Unsuitable population (inc. setting)
Peiris et al. ¹⁵⁰ 2012	Unsuitable intervention
Peiris et al. ¹⁵¹ 2012	Unsuitable publication type (conference abstract, thesis)
Pfeiffer et al. ¹⁵² 2020	Unsuitable intervention
Pol et al. ¹⁵³ 2019	Outcomes of interest not available
Porserud et al. ¹⁵⁴ 2019	Unsuitable intervention
Porserud et al. ¹⁵⁵ 2019	Unsuitable publication type (conference abstract, thesis)
Potiaumpai et al. ¹⁵⁶ 2021	Unsuitable intervention
Pottebaum et al. ¹⁵⁷ 2021	Unsuitable study design
Prince et al. ¹⁵⁸ 2018	Unsuitable population (inc. setting)
Raymond et al. ¹⁵⁹ 2018	Unsuitable intervention
Reed et al. ¹⁶⁰ 2021	Unsuitable intervention
Ringen et al. 161 2018	Unsuitable study design
Rivard et al. 162 2012	Unsuitable publication type (conference abstract, thesis)
Robinson et al. ¹⁶³ 2020	Unsuitable publication type (conference abstract, thesis)
S⊘rensen et al. ¹⁶⁴ 2021	Unsuitable study design
Saez de Asteasu et al. 165 2019	Unsuitable intervention
Said et al. 166 2018	Unsuitable intervention
Said et al. ¹⁶⁷ 2018	Unsuitable intervention
Said et al. ¹⁶⁸ 2012	Unsuitable intervention
Salpakoski et al. ¹⁶⁹ 2014	Unsuitable population (inc. setting)
Schaller et al. ¹⁷⁰ 2016	Unsuitable intervention
Scheer et al. 171 2017	Unsuitable study design
Schneeberger et al. 172 2016	Unsuitable publication type (conference abstract, thesis)
Serper et al. ¹⁷³ 2019	Unsuitable publication type (conference abstract, thesis)
Sharan et al. 174 2016	Non-adult sample (<18 y.o)
Shelton et al. 175 2009	Unsuitable population (inc. setting)
Siebens et al. 176 2020	Unsuitable intervention
Sladkova et al. ¹⁷⁷ 2016	Unsuitable publication type (conference abstract, thesis)
Solheim et al. ¹⁷⁸ 2017	Unsuitable population (inc. setting)
Soto-Perez-De-Celis et al. 179 2018	Unsuitable study design
Steele et al. 180 2012	Unsuitable publication type (conference abstract, thesis)
Steffens et al. ¹⁸¹ 2021	Outcomes of interest not available
Su et al. 182 2021	Unsuitable population (inc. setting)
Svestkova et al. 183 2014	Unsuitable publication type (conference abstract, thesis)
2.00m074 0t di. 2017	2.12.1.32.10 pasitional typo (control of the debut dot, tiloolo)

Swank et al. 184 2020	Unsuitable intervention
Tahirah et al. ¹⁸⁵ 2015	Unsuitable publication type (conference abstract, thesis)
Taraldsen et al. ¹⁸⁶ 2014	Unsuitable intervention
Timmerman et al. ¹⁸⁷ 2018	Unsuitable study design
Usui et al. ¹⁸⁸ 2015	Unsuitable publication type (conference abstract, thesis)
Valenzuela et al. ¹⁸⁹ 2020	Unsuitable intervention
Van Biervilet et al. 190 2021	Unsuitable study design
Van der Peijl et al. ¹⁹¹ 2004	Unsuitable intervention
Vilarnau et al. 192 2004	Unsuitable publication type (conference abstract, thesis)
Waite et al. 193 2020	Unsuitable study design
Waller et al. 194 2021	Unsuitable comparator/control
Waller et al. 195 2018	Unsuitable publication type (conference abstract, thesis)
Ward et al. ¹⁹⁶ 2021	Unsuitable study design
Waugh et al. 197 2018	Unsuitable study design
Wedlund et al. ¹⁹⁸ 2021	Unsuitable publication type (conference abstract, thesis)
Welsch et al. 199 2018	Unsuitable publication type (conference abstract, thesis)
Widyastuti et al. ²⁰⁰ 2017	Unsuitable publication type (conference abstract, thesis)
Wiklund et al. ²⁰¹ 2015	Unsuitable comparator/control
Winter et al. ²⁰² 2011	Unsuitable publication type (conference abstract, thesis)
Wiskemann et al. ²⁰³ 2011	Unsuitable intervention
Wiskemann et al. ²⁰⁴ 2015	Unsuitable intervention
Wu et al. ²⁰⁵ 2019	Unsuitable study design
Wynter-Blyth et al. ²⁰⁶ 2017	Unsuitable study design
Yu et al. ²⁰⁷ 2022	Unsuitable intervention
Yudi et al. ²⁰⁸ 2017	Unsuitable publication type (conference abstract, thesis)
Zimmerman et al. ²⁰⁹ 2007	Unsuitable population (inc. setting)

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