Supplementary Online Content

Hodkinson A, Kontopantelis E, Adeniji C, et al. Interventions using wearable physical activity trackers among adults with cardiometabolic conditions: a systematic review and meta-analysis. *JAMA Netw Open*. 2021;4(7):e2116382. doi:10.1001/jamanetworkopen.2021.16382

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

eFigure 1: Forest plot of Accelerometer/Fitbit vs pedometer-based interventions with prediction interval

	Standardised Mean			
Study	Difference	SMD	95%-CI	Weight
Alonso-Dominguez 2019		0.30	[0.03; 0.58]	3.3%
Anderson 2015	- <u>+</u> -	0.85	[0.07; 1.63]	2.6%
Andrews 2011	+	0.20	[-0.03; 0.44]	3.3%
Araiza 2006		1.18	[0.40; 1.96]	2.6%
Chudowolska-Kielkowska 2020		2.71	[2.33; 3.09]	3.2%
Claes 2020		-0.03	[-0.42; 0.36]	3.2%
Cupples 2013		0.97	[0.35; 1.60]	2.8%
Dasgupta 2017	+	0.39	[0.18; 0.60]	3.3%
De Greef 2010		0.91	[0.27; 1.55]	2.8%
De Greef 2011 (1)	<u> </u>	0.44	[-0.07; 0.94]	3.0%
De Greef 2011 (2)		1.43	[0.96; 1.91]	3.0%
Fayehun 2018		0.61	[0.01; 1.20]	2.9%
Greaney 2017		-0.12	[-0.48; 0.24]	3.2%
Grey 2019		0.23	[-0.28; 0.74]	3.0%
Guiraud 2012		1.21	[0.38; 2.04]	2.5%
Houle 2011, 2012	- IT _	0.56	[0.06; 1.06]	3.0%
Karstoft 2013		- 4.02	[2.75; 5.29]	1.8%
Katzmarzyk 2011		0.22	[-0.45; 0.89]	2.7%
Kirk 2009	「「「」「「」」	0.32	[-0.07; 0.71]	3.2%
Lewis 2020		0.19	[-0.43; 0.82]	2.8%
Lyons 2017		0.00	[-0.07, 1.20]	2.8%
Lystrup 2020 Mostin 2015		-0.04	[-0.42, 0.34]	3.2%
Mivamoto 2017	in an	0.09	[0.37, 1.00]	3.2%
Paschali 2005		0.05	$\begin{bmatrix} 0.12, 1.42 \end{bmatrix}$	2.0%
Paula 2015		1.09	$\begin{bmatrix} 0.14, 1.70 \end{bmatrix}$	2.0%
Pekmezi 2017		0.21	[-0.24:0.67]	2.0%
Piette 2011		0.46	[0.23:0.69]	3.3%
Plotnikoff 2013		1 17	[0.87:1.48]	3.3%
Silfee 2016		0.77	[-0.08: 1.61]	2.5%
Tudor-Locke 2004		0.96	[0.35; 1.56]	2.9%
Van Dyck 2013		1.43	[0.96; 1.91]	3.0%
Yates 2009		0.53	[0.25: 0.81]	3.3%
Yates 2017	+	0.12	[-0.04; 0.29]	3.4%
Random effects model	•	0.72	[0.46: 0.971	100.0%
Prediction interval			[-0.72; 2.16]	
Heterogeneity: $I^2 = 88\%$, $\tau^2 = 0.48$, $p < 100$	0.01		,	
-	4 -2 0 2 4			
Favours	usual care Favours device	e		

eFigure 2: Forest plot of pedometer-based interventions on mean difference scale

Study	Mean Difference	MD	95%-CI	Weight
Alonso-Dominguez 2019	—	1536.00	[143.15; 2928.85]	4.0%
Anderson 2015		3374.50	[412.62; 6336.38]	2.6%
Andrews 2011	4	5.00	[-0.70; 10.70]	4.7%
Araiza 2006		4170.00	[1640.22; 6699.78]	2.9%
Chudowolska-Kielkowska 2020		7059.00	[6335.20; 7782.80]	4.5%
Cupples 2013	· · ·	2784.00	[1090.71; 4477.29]	3.7%
Dasgupta 2017		1190.00	[547.26; 1832.74]	4.5%
De Greef 2010		4063.00	[1331.42; 6794.58]	2.7%
De Greef 2011 (1)		1597.98	[-230.17; 3426.13]	3.6%
De Greef 2011 (2)		3820.00	[2676.87; 4963.13]	4.2%
Fayehun 2018		1563.00	[71.51; 3054.49]	3.9%
Greaney 2017	÷ .	-53.17	[-212.77; 106.43]	4.7%
Houle 2011, 2012		1880.00	[246.37; 3513.63]	3.8%
Katzmarzyk 2011		611.00	[-1246.08; 2468.08]	3.5%
Kirk 2009	•	92.50	[-18.06; 203.06]	4.7%
Lewis 2020		6.40	[-14.01; 26.81]	4.7%
Paula 2015	· · ·	2681.00	[1139.77; 4222.23]	3.8%
Pekmezi 2017	4	10.70	[-11.75; 33.15]	4.7%
Piette 2011		1185.00	[595.75; 1774.25]	4.6%
Plotnikoff 2013	+	1075.51	[818.04; 1332.98]	4.7%
Silfee 2016	· ·	2106.79	[-145.12; 4358.70]	3.2%
Tudor-Locke 2004		3501.00	[1410.57; 5591.43]	3.3%
Van Dyck 2013		3820.00	[2676.87; 4963.13]	4.2%
Yates 2009		1902.00	[970.08; 2833.92]	4.3%
Yates 2017		396.00	[-125.39; 917.39]	4.6%
Random effects model		1877.30	[1139.70; 2614.90]	100.0%
Heterogeneity: $I^2 = 96\%$, $\tau^2 = 2733468.63^{\circ}$,	<i>p</i> < 0.01			
-50	00 0 5000			
Favours us	sual care Favours device			

eFigure 3: Cumulative forest plot ordered by highest-to-lowest total session time engagement in PA (recorded by total minutes)

Standardised Mean

	Standardised Wean			
Study	Difference	SMD	95%-CI	Weight
Greaney 2017 (720 mins)		-0.12	[-0.48; 0.24]	4.5%
Houle 2011, 2012 (720 mins)		0.56	[0.06; 1.06]	4.2%
Kirk 2009 (720 mins)		0.32	[-0.07; 0.71]	4.4%
Yates 2017 (720 mins)		0.12	[-0.04; 0.29]	4.9%
Pekmezi 2017 (360 mins)		0.21	[-0.24; 0.67]	4.3%
De Greef 2011 (2) (330 mins)		1.43	[0.96; 1.91]	4.2%
Van Dyck 2013 (330 mins)		1.43	[0.96; 1.91]	4.2%
Andrews 2011 (270 mins)		0.20	[-0.03; 0.44]	4.8%
Tudor-Locke 2004 (210 mins)		0.96	[0.35; 1.56]	3.8%
Anderson 2015 (180 mins)		0.85	[0.07; 1.63]	3.3%
De Greef 2010 (180 mins)		0.91	[0.27; 1.55]	3.7%
De Greef 2011 (1) (180 mins)	+ + ÷	0.44	[-0.07; 0.94]	4.1%
Miyamoto 2017 (180 mins)	+ • •	0.65	[-0.12; 1.42]	3.4%
Paschali 2005 (180 mins)		0.95	[0.14; 1.76]	3.3%
Claes 2020 (150 mins)		-0.03	[-0.42; 0.36]	4.4%
Fayehun 2018 (150 mins)		0.61	[0.01; 1.20]	3.9%
Plotnikoff 2013 (150 mins)		1.17	[0.87; 1.48]	4.6%
Guiraud 2012 (120 mins)		1.21	[0.38; 2.04]	3.2%
Silfee 2016 (102 mins)		0.77	[-0.08; 1.61]	3.2%
Araiza 2006 (90 mins)		1.18	[0.40; 1.96]	3.4%
Katzmarzyk 2011 (30 mins)		0.22	[-0.45; 0.89]	3.7%
Lyons 2017 (20 mins)		0.56	[-0.07; 1.20]	3.8%
Paula 2015 (20 mins)		1.08	[0.41; 1.74]	3.7%
Alonso-Dominguez 2019 (10 mins)		0.30	[0.03; 0.58]	4.7%
Chudowolska-Kielkowska 2020 (10 mins)		- 2.71	[2.33; 3.09]	4.4%
Random effects model		0.73	[0.47; 0.99]	100.0%
Heterogeneity: $I^2 = 90\%$, $\tau^2 = 0.32$, $p < 0.01$		-		
3	-2 -1 0 1 2	3		
Favou	rs usual care Favours devic	e		

eFigure 4: Individual funnel plots of accelerometer/Fitbit and pedometer-based interventions



Meta regression results (egger's and trim & fill)

Pedometers:

Random/mixed effects version of the Eggar test: Regression Test for Funnel Plot Asymmetry mixed-effects meta-regression model model: predictor: standard error test for funnel plot asymmetry: z = 0.9660, p = 0.3340Trim and fill: Estimated number of missing studies on the left side: 0 (SE = 2.9654) Random-Effects Model (k = 24; tau/2 estimator: REML) tau^2 (estimated amount of total heterogeneity): 0 (SE = 1.3174) tau (square root of estimated tau^2 value): I^2 (total heterogeneity / total variability): H^2 (total variability / sampling variability): n 0.00% 1.00 Test for Heterogeneity: Q(df = 23) = 1.4798, p-val = 1.0000Model Results: zval 1.4254 pval **0.1541** estimate ci.lb ci.ub se 0.4335 0.6179 -0.2318 1.4675 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Accelerometers/Fitbits:

Random/mixed effects version of the Eggar test: Regression Test for Funnel Plot Asymmetry mixed-effects meta-regression model model: predictor: standard error test for funnel plot asymmetry: z = 0.4884, p = 0.6253Trim and fill: Estimated number of missing studies on the left side: 0 (SE = 1.9044) Random-Effects Model (k = 8; tau² estimator: REML) tau^2 (estimated amount of total heterogeneity): 0 (SE = 1.7815) tau (square root of estimated tau^2 value): 0 I^2 (total heterogeneity / total variability):
H^2 (total variability / sampling variability): 0.00% 1.00 Test for Heterogeneity: Q(df = 7) = 1.2054, p-val = 0.9908Model Results:

estimate se zval pval ci.lb ci.ub 0.6552 0.6655 0.9845 **0.3249** -0.6492 1.9596 ---Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

eFigure 5: All forest plots

Physical activity measurement used for primary outcome (Steps vs. MVPA)

Study	Standardised Mean	SMD	95%-01	Weight
Study	Difference	SIVID	35%-CI	weight
Steps		0.00	10.00.0.501	0.00/
Alonso-Dominguez 2019		0.30	[0.03; 0.58]	3.3%
Anderson 2015		0.85	[0.07; 1.63]	2.6%
Aldiza 2006 Chudowolska, Kielkowska 2020		1.10	[0.40, 1.96]	2.0%
Cupples 2012		2.71	[2.33, 3.09]	0.2%
Descupte 2017		0.37	[0.33, 1.60]	2.0%
Dasgupta 2017	- 10 C	0.03	[0.10, 0.00]	0.0%
De Greef 2010		0.31	[-0.07:0.94]	3.0%
De Greef 2011 (2)		1.43	[0.07, 0.34]	3.0%
Favehun 2018	÷	0.61	[0.00, 1.01]	2.9%
Grev 2019		0.23	[-0.28, 0.74]	3.0%
Houle 2011, 2012		0.56	[0.06; 1.06]	3.0%
Karstoft 2013		4.02	[2.75: 5.29]	1.8%
Katzmarzyk 2011		0.22	[-0.45: 0.89]	2.7%
Lyons 2017		0.56	[-0.07; 1.20]	2.8%
Lystrup 2020	÷.	-0.04	[-0.42; 0.34]	3.2%
Martin 2015		0.69	[0.37; 1.00]	3.2%
Paula 2015		1.08	[0.41; 1.74]	2.8%
Piette 2011		0.46	[0.23; 0.69]	3.3%
Plotnikoff 2013		1.17	[0.87; 1.48]	3.3%
Silfee 2016		0.77	[-0.08; 1.61]	2.5%
Tudor–Locke 2004		0.96	[0.35; 1.56]	2.9%
Van Dyck 2013	<u>_</u>	1.43	[0.96; 1.91]	3.0%
Yates 2009		0.53	[0.25; 0.81]	3.3%
Yates 2017	+	0.12	[-0.04; 0.29]	3.4%
Random effects model		0.85	[0.53; 1.17]	73.7%
Heterogeneity: $l^2 = 90\%$, $\tau^2 = 0.57$, $p < 0$).01			
MVPA				
Andrews 2011	+	0.20	[-0.03; 0.44]	3.3%
Claes 2020		-0.03	[-0.42; 0.36]	3.2%
Greaney 2017	÷.	-0.12	[-0.48; 0.24]	3.2%
Guiraud 2012		1.21	[0.38; 2.04]	2.5%
Kirk 2009	- E	0.32	[-0.07; 0.71]	3.2%
Lewis 2020		0.19	[-0.43; 0.82]	2.8%
Miyamoto 2017	+ <u>+</u> -	0.65	[-0.12; 1.42]	2.6%
Paschali 2005		0.95	[0.14; 1.76]	2.5%
Pekmezi 2017		0.21	[-0.24; 0.67]	3.1%
Random effects model	♦	0.30	[0.00; 0.61]	26.3%
Heterogeneity: $l^2 = 47\%$, $\tau^2 = 0.12$, $p = 0$	0.06			
Random effects model	\$	0.72	[0.46; 0.97]	100.0%
Heterogeneity: $l^2 = 88\%$, $\tau^2 = 0.48$, $p < 0.48$).01		-	
Residual heterogeneity: $I^2 = 88\%$, $p < \theta$.	●1 −2 0 2 4			
Favours	usual care Favours device			

Physical activity by delivery type (FTF consultation vs. self-managed)

Standardised Mean				
Study	Difference	SMD	95%-CI	Weight
Face to face				
Alonso-Dominguez 2019		0.30	[0.03: 0.58]	3.3%
Andrews 2011		0.20	[-0.03: 0.44]	3.3%
Araiza 2006		1.18	[0.40; 1.96]	2.6%
Chudowolska-Kielkowska 2020		2.71	[2.33; 3.09]	3.2%
Cupples 2013		0.97	0.35; 1.60]	2.8%
De Greef 2010		0.91	[0.27; 1.55]	2.8%
De Greef 2011 (1)		0.44	[-0.07; 0.94]	3.0%
De Greef 2011 (2)		1.43	[0.96; 1.91]	3.0%
Fayehun 2018		0.61	[0.01; 1.20]	2.9%
Grey 2019		0.23	[-0.28; 0.74]	3.0%
Guiraud 2012		1.21	[0.38; 2.04]	2.5%
Houle 2011, 2012		0.56	[0.06; 1.06]	3.0%
Karstoft 2013		4.02	[2.75; 5.29]	1.8%
Kirk 2009		0.32	[-0.07; 0.71]	3.2%
Lewis 2020		0.19	[-0.43; 0.82]	2.8%
Lystrup 2020		-0.04	[-0.42; 0.34]	3.2%
Paschali 2005	- <u>-</u>	0.95	[0.14; 1.76]	2.5%
Paula 2015		1.08	[0.41; 1.74]	2.8%
Plette 2011		0.46	[0.23; 0.69]	3.3%
PIOTNIKOTT 2013		1.17	[0.87; 1.48]	3.3%
Sillee 2016 Tuder Looko 2004		0.77	[-0.08, 1.61]	2.5%
Van Duale 2012		0.96	[0.30, 1.06]	2.9%
Pandom effects model		1.43	[0.96, 1.91]	3.0%
Hotorogonoity: $l^2 = 90\%$, $r^2 = 0.62$, $r < 0$	01	0.91	[0.55, 1.26]	00.070
Heterogeneity. $T = 50\%, T = 0.02, p < 0$.01			
Self-managed				
Anderson 2015	- <u>-</u>	0.85	[0.07; 1.63]	2.6%
Claes 2020		-0.03	[-0.42; 0.36]	3.2%
Dasgupta 2017	+	0.39	[0.18; 0.60]	3.3%
Greaney 2017	1	-0.12	[-0.48; 0.24]	3.2%
Katzmarzyk 2011		0.22	[-0.45; 0.89]	2.7%
Lyons 2017	<u>1</u>	0.56	[-0.07; 1.20]	2.8%
Martin 2015		0.69	[0.37; 1.00]	3.2%
Miyamoto 2017	+	0.65	[-0.12; 1.42]	2.6%
Pekmezi 2017	11日	0.21	[-0.24; 0.67]	3.1%
Yates 2009	19	0.53	[0.25; 0.81]	3.3%
Yates 2017		0.12	[-0.04; 0.29]	3.4%
Random effects model	01	0.33	[0.13; 0.53]	33.4%
Heterogeneity: $T^2 = 60\%$, $T^2 = 0.06$, $p < 0$.01			
Random effects model		0.72	[0.46; 0.97]	100.0%
Heterogeneity: $I^2 = 88\%$, $\tau^2 = 0.48$, $p < 0$.01			
Residual heterogeneity: $l^2 = 87\%$, $p < 0.4$	01 −2 0 2 4			
Favours	usual care Favours device			

Blood (sugar) glucose (hba1c %)

				Weight	Weight
Study	Mean Difference	MD	95%-CI	(fixed)	(random)
Pedometer					
Andrews 2011		-0.16	[-0.37; 0.05]	1.8%	10.2%
Araiza 2006		0.00	[-1.19; 1.19]	0.1%	1.1%
Bjorgaas 2008		-0.20	[-0.83; 0.43]	0.2%	3.4%
Dasgupta 2017 -		-0.48	[-0.99; 0.03]	0.3%	4.6%
De Greef 2010		-0.60	[-1.34; 0.14]	0.2%	2.6%
De Greef 2011 (1)		-0.01	[-0.45; 0.43]	0.4%	5.5%
Diedrich 2010		-0.31	[-0.83; 0.21]	0.3%	4.4%
Engel 2006 -		-0.34	[-0.96; 0.28]	0.2%	3.4%
Fayehun 2018	- - -	-0.56	[-0.71; -0.41]	3.8%	11.9%
Piette 2011		0.20	[-0.20; 0.60]	0.5%	6.1%
Plotnikoff 2013	+	0.07	[0.04; 0.10]	88.2%	13.9%
Tudor-Locke 2004 —		0.00	[-1.03; 1.03]	0.1%	1.5%
Van Dyck 2013		-0.10	[-0.66; 0.46]	0.3%	4.0%
Fixed effect model	\$	0.03	[0.01; 0.06]	96.5%	
Random effects model	\diamond	-0.19	[-0.35; -0.03]		72.5%
Heterogeneity: $I^2 = 85\%$, $p < 0.01$					
Accelerometer/Fitbit					
Claes 2020		-0.08	[-0.72; 0.56]	0.2%	3.3%
Houle 2011, 2012		-0.10	[-0.72; 0.52]	0.2%	3.4%
Kirk 2009 —		-0.40	[-1.01; 0.21]	0.2%	3.5%
Lystrup 2020		0.20	[-0.18; 0.58]	0.6%	6.5%
Miyamoto 2017		0.03	[-0.16; 0.22]	2.3%	10.8%
Fixed effect model	\rightarrow	0.02	[-0.14; 0.17]	3.5%	
Random effects model		-0.00	[-0.24; 0.23]		27.5%
Heterogeneity: $I^2 = 0\%$, $p = 0.57$					
Fixed effect model	0	0.03	[0.01: 0.06]	100.0%	
Random effects model	\diamond	-0.14	[-0.27; -0.01]		100.0%
Heterogeneity: $l^2 = 80\%$, $p < 0.01$,,		
Residual heterogeneity: $l^2 = 81\%$,	<i>p</i> ⊲00501 0 0.5 1				
Favour	s Device Favours Usua	l care			

Blood pressure (SBP and DBP)

				Weight	Weight
Study	Mean Difference	MD	95%-CI	(fixed)	(random)
600	ч				
SBP Anderson 2015		0.40	1 40 67: 40 471	0.50/	4.00/
Anderson 2015		-0.10	[-10.67, 10.47]	0.5%	1.8%
Andrews 2011	Ŧ	0.00	[-3.02; 3.02]	5.7%	3.2%
Araiza 2006		-8.10	[-20.82; 4.62]	0.3%	1.5%
Balliot 2018	- <u>+</u> +	3.20	[-5.09; 11.49]	0.8%	2.2%
Bjorgaas 2008		-2.60	[-15.04; 9.84]	0.3%	1.5%
Chudowolska-Kielkowska 2020		-4.20	[-8.70; 0.30]	2.6%	2.9%
Claes 2020		-4.00	[-11.16; 3.16]	1.0%	2.4%
Dasgupta 2017	5	-2.59	[-5.67; 0.49]	5.5%	3.1%
De Greet 2010	+	9.10	[-3.33; 21.53]	0.3%	1.5%
Devi 2014		2.25	[-4.15; 8.65]	1.3%	2.5%
Diedrich 2010	<u></u>	-0.75	[-16.31; 14.81]	0.2%	1.1%
Engel 2006	- 	5.30	[-4.89; 15.49]	0.5%	1.8%
Frederix 2015		- 21.00	[-12.40; 54.40]	0.0%	0.3%
Houle 2011/12	- <u>+</u> +	3.00	[-5.66; 11.66]	0.7%	2.1%
Kirk 2009	- }-	0.58	[-4.33; 5.49]	2.2%	2.8%
Lewis 2020		9.30	[0.28; 18.32]	0.6%	2.0%
Paula 2015	_ 	-11.70	[-19.87; -3.53]	0.8%	2.2%
Piette 2011		-3.40	[-7.81; 1.01]	2.7%	2.9%
Ribeiro 2017		-5.00	[-12.76; 2.76]	0.9%	2.3%
Tudor-Locke 2004		5.00	[-4.42; 14.42]	0.6%	2.0%
Van Dyck 2013		-2.10	[-8.73: 4.53]	1.2%	2.5%
Fixed effect model	8	-1.17	[-2.52: 0.18]	28.8%	
Random effects model	4	-0.54	[-2.90: 1.81]		44.8%
Heterogeneity: $l^2 = 32\%$, $p = 0.08$					
100010g0100g7 02.00, p 0.00					
DBP					
Anderson 2015	 }	0.20	[-8.36; 8.76]	0.7%	2.1%
Andrews 2011	÷.	0.00	[-2.27; 2.27]	10.2%	3.2%
Araiza 2006	- <u>+</u> +	2.40	[-5.33; 10.13]	0.9%	2.3%
Baillot 2018		-5.50	[-12.87; 1.87]	1.0%	2.4%
Bjorgaas 2008		5.50	[-2.84; 13.84]	0.8%	2.2%
Chudowolska-Kielkowska 2020	포	-5.30	[-8.12; -2.48]	6.6%	3.2%
Claes 2020		-4.00	[-7.93; -0.07]	3.4%	3.0%
Dasgupta 2017	-	-1.21	[-3.05: 0.63]	15.5%	3.3%
De Greef 2010	<u>_</u>	0.70	[-5.42: 6.82]	1.4%	2.6%
Devi 2014		0.48	[-3.61: 4.57]	3.1%	3.0%
Diedrich 2010		-8 17	[-14 91 -1 43]	1.2%	2.5%
Engel 2006	I	7.00	[1.83 12.17]	2.0%	2.8%
Frederix 2015		-1.76	[-8 14 4 62]	1.3%	2.5%
Houle 2011/12		0.00	[-6.09; 6.09]	1.4%	2.6%
Kirk 2009	<u>i</u>	-1.47	[-4.72: 1.78]	5.0%	3 1%
Lowis 2000	1.	3.40	[-2.74: 0.54]	1 /1%	2.6%
Paula 2015		-2.10	[-2.74, 9.04]	2.00/	2.0%
Diotto 2011		-2.40	[-7.30, 1.10]	0.20/	2.3%
Piletie 2011 Diboiro 2017	-	-3.40	[-0.9], -0.09]	0.370	3.270
Ribello 2017		-28.00	[-33.33, -22.07]	1.6%	2.8%
TudoI-Locke 2004	1	3.00	[-1.51, 7.51]	2.0%	2.9%
Fixed effect model	9	-2.04	[-2.89; -1.18]	/1.2%	
Random effects model	9	-2.05	[-5.39; 1.29]		55.2%
Heterogeneity: I^{\sim} = 86%, $p < 0.01$					
Fixed effect model	4	-1.79	[-2.51; -1.06]	100.0%	
Random effects model	¢.	-1.33	[-3.34; 0.68]		100.0%
Heterogeneity: $I^2 = 76\%$, $p < 0.01$					
Residual heterogeneity: $I^2 = 76\%$, $p < 0.4$	00 - 20 0 20 40				
Favo	urs Device Favours Usua	al care			

Cholesterol (total, HDL, LDL)

Study	Standardised Mean Difference	SMD	95%-CI	Weight (fixed)	Weight (random)
Total Cholesterol Andrews 2011 Araiza 2006 Bjorgaas 2008 Chudowolska-Kielkowska 2020 Claes 2020 Dasgupta 2017 De Greef 2010 De Greef 2011(1) Houle 2011/12 Kirk 2009 Miyamoto 2017 Paula 2015 Tudor-Locke 2004 Van Dyck 2013 Fixed effect model Random effects model Heterogeneity: $l^2 = 57\%$, $p < 0.01$		-0.08 0.16 0.45 -0.59 -0.03 0.08 0.17 0.04 -0.24 -0.53 0.37 0.22 0.27 -0.57 -0.10 -0.07	[-0.32; 0.15] [-0.56; 0.87] [-0.15; 1.05] [-0.91; -0.28] [-0.42; 0.36] [-0.42; 0.36] [-0.44; 0.78] [-0.46; 0.54] [-0.83; 0.35] [-0.93; -0.14] [-0.39; 1.13] [-0.39; 1.13] [-0.40; 0.84] [-1.00; -0.13] [-0.20; 0.01] [-0.27; 0.13]	7.2% 0.8% 1.1% 4.0% 2.6% 8.9% 1.0% 1.6% 1.6% 1.1% 2.5% 0.7% 1.0% 1.2% 2.1% 35.7%	4.5% 1.6% 2.1% 3.2% 4.6% 2.0% 2.6% 2.1% 3.2% 1.5% 2.0% 2.2% 3.0%
HDL (mg/dl) Andrews 2011 Araiza 2006 Bjorgaas 2008 Claes 2020 Dasgupta 2017 Houle 2011/12 Kirk 2009 Paula 2015 Plotnikoff 2013 Tudor-Locke 2004 Van Dyck 2013 Fixed effect model Random effects model Heterogeneity: $l^2 = 51\%$, $p = 0.03$		-0.08 0.03 0.49 -0.15 0.10 0.00 -0.31 0.00 -0.54 0.33 -0.13 -0.09 -0.07	[-0.32; 0.15] [-0.69; 0.75] [-0.12; 1.09] [-0.54; 0.25] [-0.11; 0.31] [-0.59; 0.59] [-0.71; 0.08] [-0.62; 0.62] [-0.81; -0.26] [-0.25; 0.90] [-0.26; 0.30] [-0.26; 0.11]	7.2% 0.8% 1.1% 2.5% 8.9% 1.1% 2.6% 1.0% 5.1% 1.2% 2.1% 33.7%	4.5% 1.6% 2.1% 3.2% 4.6% 2.1% 3.2% 2.0% 4.1% 2.2% 3.0% 32.7%
LDL (mg/dl) Andrews 2011 Araiza 2006 Claes 2020 Dasgupta 2017 Houle 2011/12 Miyamoto 2017 Paula 2015 Plotnikoff 2013 Tudor-Locke 2004 Van Dyck 2013 Fixed effect model Random effects model Heterogeneity: l^2 = 39%, p = 0.10		-0.03 0.30 -0.07 0.11 -0.29 -0.62 0.28 0.46 -0.12 -0.03 0.08 0.05	[-0.26; 0.21] [-0.42; 1.02] [-0.46; 0.32] [-0.10; 0.32] [-0.88; 0.31] [-1.39; 0.15] [-0.35; 0.90] [0.18; 0.74] [-0.69; 0.46] [-0.69; 0.40] [-0.03; 0.20] [-0.15; 0.24]	7.2% 0.8% 2.6% 8.9% 1.1% 0.7% 1.0% 5.1% 1.2% 2.1% 30.6%	4.5% 1.6% 3.2% 4.6% 2.1% 1.5% 2.0% 4.1% 2.2% 3.0% 28.8%
Fixed effect model Random effects model Heterogeneity: $l^2 = 53\%$, $p < 0.01$ Residual heterogeneity: $l^2 = 51\%$,	p≤0:01 -0.5 0 0.5 1	-0.04 -0.04	[-0.10; 0.02] [-0.14; 0.06]	100.0%	100.0%

Favours Device Favours Usual care

BMI

				Weight	Weight
Study	Mean Difference	MD	95%-CI	(fixed)	(random)
Pedometer					
Anderson 2015		-0.10	[-4.93; 4.73]	0.0%	2.2%
Araiza 2006		-3.90	[-7.91; 0.11]	0.0%	2.8%
Cayir 2015	-+	-1.60	[-2.76; -0.44]	0.3%	7.0%
Chudowolska-Kielkowska 2020		-0.50	[-1.92; 0.92]	0.2%	6.5%
Dasgupta 2017	<u></u>	-0.25	[-1.20; 0.70]	0.5%	7.3%
De Greef 2010		-2.40	[-5.19; 0.39]	0.1%	4.2%
De Greef 2011(1)		-2.36	[-4.93; 0.21]	0.1%	4.6%
Engel 2006		1.50	[-2.46; 5.46]	0.0%	2.8%
Lewis 2020		0.50	[-1.55; 2.55]	0.1%	5.4%
Paula 2015	+:	-2.00	[-3.88; -0.12]	0.1%	5.7%
Plotnikoff 2013	*	-0.05	[-0.12; 0.02]	97.6%	8.1%
Van Dyck 2013		0.41	[-0.91; 1.73]	0.2%	6.7%
Fixed effect model	4	-0.06	[-0.13; 0.00]	99.3%	
Random effects model	\diamond	-0.74	[-1.54; 0.06]		63.5%
Heterogeneity: $I^2 = 50\%$, $p = 0.02$					
Accelerometer/Fitbit					
Claes 2020	<u>_</u>	-1.70	[-3.27; -0.13]	0.2%	6.3%
Frederix 2015		1.00	[-0.66; 2.66]	0.2%	6.1%
Kirk 2009		-2.07	[-5.13; 0.99]	0.0%	3.8%
Lyons 2017		-0.68	[-2.84; 1.48]	0.1%	5.2%
Miyamoto 2017	· · · · · · · · · · · · · · · · · · ·	4.54	[2.03; 7.05]	0.1%	4.6%
Pekmezi 2017		0.60	[-1.63; 2.83]	0.1%	5.1%
Ribeiro 2017		0.80	[-1.31; 2.91]	0.1%	5.3%
Fixed effect model		0.19	[-0.58; 0.97]	0.7%	
Random effects model		0.35	[-1.63; 2.33]		36.5%
Heterogeneity: I^2 = 72%, $p < 0.01$					
Fixed effect model		-0.06	[-0.12: 0.01]	100.0%	
Random effects model	4	-0.38	[-1.20; 0.44]		100.0%
Heterogeneity: $I^2 = 59\%$, $p < 0.01$					
Residual heterogeneity: $I^2 = 61\%$, $p < 0$.0-15 0 5				
Eau	ura Daviaa – Favoura Haua	Leare			

Favours Device Favours Usual care

Weight (kg)

				Weight	Weight
Study	Mean Difference	MD	95%-CI	(fixed)	(random)
Pedometer					
Andrews 2011	<u></u>	-4.80 [-8.89; -0.71]	12.4%	8.1%
Cayir 2015		-5.60 [-9.40; -1.80]	14.4%	8.2%
Chudowolska-Kielkowska 2020	4	-1.70	[-6.58; 3.18]	8.7%	7.6%
Dasgupta 2017		-1.35	[-4.63; 1.93]	19.3%	8.5%
De Greef 2010		-8.70 [·	-18.50; 1.10]	2.2%	4.9%
Diedrich 2010 -		-26.64 [·	-58.43; 5.15]	0.2%	0.9%
Engel 2006		6.40 [-6.92; 19.72]	1.2%	3.5%
Lewis 2020	1 = - -	4.90 [-2.82; 12.62]	3.5%	6.0%
Tudor–Locke 2004	.	4.30 [-6.53; 15.13]	1.8%	4.5%
Van Dyck 2013		4.05	[-1.54; 9.64]	6.6%	7.2%
Fixed effect model	4	-2.08 [-3.80; -0.36]	70.2%	
Random effects model	\$	-1.26 [-5.70; 3.19]		59.4%
Heterogeneity: $I^2 = 55\%$, $p = 0.02$					
Accelerometer/Fithit					
Devi 2014	1	2.31	-3 73 8 351	57%	7.0%
Frederix 2015	<u> </u>	0.50	[-4.72, 5.72]	7.6%	7.4%
Holliday 2018		0.46 [-	12 89: 13 811	1.2%	3.5%
Lyons 2017	<u></u>	-1 13	-7.81 5.55	4.6%	6.6%
Lystrup 2020		10 00 [-6 14 26 14]	0.8%	2.7%
Pekmezi 2017		-1.80	-8.08: 4.48]	5.3%	6.8%
Ribeiro 2017		9.00	2.32: 15.68]	4.7%	6.6%
Fixed effect model	\$	1.76	-0.87; 4.40]	29.8%	
Random effects model	÷	1.99	-1.97: 5.96]		40.6%
Heterogeneity: $I^2 = 23\%$, $p = 0.26$		-	•		
Fixed effect model		-0.93 [-2.37: 0.511	100.0%	
Random effects model	\$	0.13	-2.70; 2.961		100.0%
Heterogeneity: $I^2 = 52\%$, $p < 0.01$					
Residual heterogeneity: $I^2 = 46\%$, p	= 0.4120 - 20 0 20 40				
E	avoure Device Eavoure Lleua	l care			



eTable 1: Search strategies

Medline

# 🔺	Searches	Results
1	Cardiovascular Diseases/	152632
2	(cardiovascular adj1 disease\$).tw.	150229
3	cardiovascular risk factor\$.tw.	31197
4	exp heart diseases/	1146729
5	exp Coronary Artery Bypass/	53473
6	exp Myocardial Revascularization/	92869
7	exp heart transplantation/	36070
8	Percutaneous Coronary Intervention/ or Angioplasty, Balloon, Coronary/	54555
9	Heart Valve Prosthesis/	36394
10	Pulmonary embolism/	39358
11	((myocardial or cardiac or heart) adj2 (infarct* or isch?emi*)).tw.	239817
12	(coronary adj2 (syndrome* or disease* or event* or occlusion* or stenos* or	178348
	thrombo*)).tw.	
13	(myocard* adj2 revasculari?ation).tw.	5352
14	(STEMI or NSTEMI).tw.	10192
15	(ST adj2 (elevat* or depress*)).tw.	29827
16	"heart transplant*".tw.	21509
17	angina.tw.	49402
18	(heart adj2 (failure or attack or bypass or disease*)).tw.	294547
19	((heart or cardiac or myocard*) adj2 (fail* or insufficien* or decomp*)).tw.	168633
20	(HFpEF or HFrEF or left ventricular ejection fraction or ((preserved or reduced)	28582
	adj ejection fraction)).tw.	
21	(LV dysfunction or (diastolic adj (dysfunction* or failure*)) or (systolic adj	17690
	(dysfunction* or failure*))).tw.	
22	pulmonary embolism*.tw.	29722
23	CABG.tw.	16083
24	(coronary adj2 bypass).tw.	43973
25	PTCA.tw.	6211
26	angioplast*.tw.	40523
27	PCI.tw.	22324
28	(Percutaneous adj2 intervention*).tw.	32511
29	(stent* adj3 (heart or cardiac*)).tw.	805
30	(heart valve adj1 (device* or artificial or prosthesis)).tw.	667
31	cardiomyopath*.tw.	63613
32	cardiovascular disease*.tw.	149898
33	or/1-32	1570796
34	Diabetes mellitus/	119569
35	diabet*.ti.	306993
36	exp Diabetes Mellitus, Type 2/	137087
37	((type 2 or type ii) adj2 diabet*).ti,ab.	124078
38	((non insulin* depend* or non insulin* depend* or non-insulin?depend* or non	9807
	insulin?depend*) adj1 diabet*).ti,ab.	
39	(T2DM or T2D or TIIDM or TIID or NIDDM or MODY or MODM or AODM).ti,ab.	31996
40	((obes* or overweight) adj5 diabet*).ti,ab.	39051

41	prediabetic state/	7067
42	(prediabetes or pre diabetes or raised glucose intolerance or impaired glucose	75450
	level\$ or impaired glucose tolerance or IGT or impaired fasting glucose or IFT or	
	FPG or fasting plasma glucose or impaired glucose regulation or impaired	
	glucose metabolism or raised glycated haemoglobin or raised glycated	
	hemoglobin or high glycated Hb or hyperglycaemia or hyperglycemia).tw.	
43	((prevent* or avoid* or delay* or decreas* or reduc*) adj2 (type II diabetes or	12238
	type 2 diabetes or T2D or DM or diabetes)).ti,ab.	
44	or/34-43	463396
45	exp Obesity/	218805
46	Obese.tw.	112489
47	exp Overweight/	225397
48	(BMI or body mass index).af.	255484
49	Weight gain/	31929
50	(Overweight or over weight or obesity or adipose).af.	416529
51	exp Obesity/pc	19636
52	(body mass index or BMI).mp.	254344
53	or/45-52	595592
54	Randomized Controlled Trial/	520611
55	Clinical Trial/	526309
56	randomized controlled trial.pt. or randomised controlled trial.mp. [mp=title,	525725
	abstract, original title, name of substance word, subject heading word, floating	
	sub-heading word, keyword heading word, organism supplementary concept	
	word, protocol supplementary concept word, rare disease supplementary	
	concept word, unique identifier, synonyms]	
57	controlled clinical trial.pt.	93998
58	trial*.ti,ab.	916198
59	or/54-58	1474132
60	pedomet*.mp.	2396
61	((step* or walk*) adj2 (count* or sensor or meter)).ti,ab.	2850
62	Accelerometry/ or (accelerom* or actimeter or actigraph or actiwatch or GT3X	16461
	or fitbit).ti,ab.	
63	((activit* or move* or motion or energy or exercise) adj2 (monitor* or sens* or	63488
	detect* or count*)).tw.	
64	or/60-63	81215
65	33 or 44 or 53	2390948
66	59 and 64 and 65	2120
67	limit 66 to yr="2000 - current"	1926

Embase

# 🔺	Searches	Results
1	Diabetes mellitus/	548816
2	diabet*.ti.	459899
3	exp Diabetes Mellitus, Type 2/	267837
4	((type 2 or type ii) adj2 diabet*).ti,ab.	235422
5	((non insulin* depend* or non insulin* depend* or non-insulin?depend* or	11649
	non insulin?depend*) adj1 diabet*).ti,ab.	
6	(T2DM or T2D or TIIDM or TIID or NIDDM or MODY or MODM or AODM).ti,ab.	70722
7	((obes* or overweight) adj5 diabet*).ti,ab.	70600
8	prediabetic state/	14073
9	(prediabetes or pre diabetes or pre-dm or subclinical diabetic or raised	145300
	glucose intolerance or impaired glucose level\$ or impaired glucose tolerance	
	or IGT or impaired fasting glucose or IFT or FPG or fasting plasma glucose or	
	impaired glucose regulation or impaired glucose metabolism or raised	
	glycated haemoglobin or raised glycated hemoglobin or high glycated Hb or	
	hyperglycaemia or hyperglycemia or without diabet* or without diagnosed	
	diabet*).tw.	
10	((prevent* or avoid* or delay* or decreas* or reduc*) adj2 (type II diabetes or	20813
	type 2 diabetes or T2D or DM or diabetes)).ti,ab.	
11	or/1-10	1008275
12	exp Obesity/	532605
13	Obese.tw.	201114
14	(overweight or obese or over-weight or over weight or overeating or over	75901
	eating or over-eating).ti.	
15	exp Overweight/	532605
16	(BMI or body mass index).af.	474490
17	exp weight reduction programs/	2431
18	Weight gain/	87925
19	(Overweight or over weight or obesity or adipose).af.	683883
20	exp Obesity/pc	16147
21	(body mass index or BMI).mp.	470733
22	Cardiovascular Diseases/	31817
23	(cardiovascular or cv or cvd or vascular or coronary).tw.	1824792
24	heart disease\$.tw.	225534
25	cardiovascular risk factor\$.tw.	56404
26	or/12-19	1083238
27	or/22-25	1941192
28	Randomized Controlled Trial/	638226
29	Clinical Trial/	988522
30	randomized controlled trial.pt. or randomised controlled trial.mp. [mp=title,	34253
	abstract, heading word, drug trade name, original title, device manufacturer,	
	drug manufacturer, device trade name, keyword, floating subheading word,	
	candidate term word]	
31	controlled clinical trial/	466002
32	trial*.ti,ab.	1517240
33	pedomet*.mp.	4327
34	((step* or walk*) adj2 (count* or sensor or meter)).ti,ab.	5971

35	Accelerometry/ or (accelerom* or actimeter or actigraph or actiwatch or GT3X or fitbit).ti,ab.	27313
36	((activit* or move* or motion or energy or exercise) adj2 (monitor* or sens* or detect* or count*)).tw.	87436
37	11 or 26 or 27	3397736
38	or/28-32	2324948
39	or/33-36	118012
40	37 and 38 and 39	2234
41	limit 40 to (year="2000 - current")	2081

PsycInfo

# 🛦	Searches	Results
1	Diabetes mellitus/	5321
2	diabet*.ti.	14551
3	exp Diabetes Mellitus/	8726
4	((type 2 or type ii) adj2 diabet*).ti,ab.	8188
5	((non insulin* depend* or non insulin* depend* or non-insulin?depend* or non	189
	insulin?depend*) adj1 diabet*).ti,ab.	
6	(T2DM or T2D or TIIDM or TIID or NIDDM or MODY or MODM or AODM).ti,ab.	1650
7	((obes* or overweight) adj5 diabet*).ti,ab.	2742
8	prediabetic state.tw.	11
9	(prediabetes or pre diabetes or pre-dm or subclinical diabetic or raised glucose	4208
	intolerance or impaired glucose level\$ or impaired glucose tolerance or IGT or	
	impaired fasting glucose or IFT or FPG or fasting plasma glucose or impaired	
	glucose regulation or impaired glucose metabolism or raised glycated	
	haemoglobin or raised glycated hemoglobin or high glycated Hb or	
	hyperglycaemia or hyperglycemia or without diabet* or without diagnosed	
	diabet*).tw.	
10	((prevent* or avoid* or delay* or decreas* or reduc*) adj2 (type II diabetes or	1202
	type 2 diabetes or T2D or DM or diabetes)).ti,ab.	
11	or/1-10	22859
12	exp Obesity/	25230
13	Obese.tw.	16441
14	(overweight or obese or over-weight or over weight or overeating or over	7144
	eating or over-eating).ti.	
15	exp Overweight/	26664
16	(BMI or body mass index).af.	62048
17	Weight gain/	3210
18	(Overweight or over weight or obesity or adipose).af.	136755
19	(body mass index or BMI).mp.	33283
20	exp Cardiovascular Disorders/	63480
21	(cardiovascular or cv or cvd or vascular or coronary).tw.	57571
22	heart disease\$.tw.	10469
23	cardiovascular risk factor\$.tw.	2354
24	or/12-19	156833
25	Randomized Controlled Trial.mp.	19510
26	randomized controlled trial.pt. or randomised controlled trial.mp. [mp=title,	3827
	abstract, heading word, table of contents, key concepts, original title, tests &	
	measures, mesh]	
27	trial*.ti,ab.	187204
28	pedomet*.mp.	898
29	((step* or walk*) adj2 (count* or sensor or meter)).ti,ab.	795
30	Accelerometry/ or (accelerom* or actimeter or actigraph or actiwatch or	4253
24		42267
31	((activit* or move* or motion or energy or exercise) adj2 (monitor* or sens* or	12367
22	detect of count "j).tw.	470524
32	11 0F 24	107460
33	25 01 20 07 27	18/468
34	28 OF 29 OF 30 OF 31	1/34/

35	32 and 33 and 34	495
36	limit 35 to yr="2000 -Current"	492

CENTRAL

# 🔺	Searches	Results
1	Diabetes mellitus/	9817
2	diabet*.ti.	58382
3	exp Diabetes Mellitus/	31706
4	((type 2 or type ii) adj2 diabet*).ti,ab.	38918
5	((non insulin* depend* or non insulin* depend* or non-insulin?depend* or	1965
	non insulin?depend*) adj1 diabet*).ti,ab.	
6	(T2DM or T2D or TIIDM or TIID or NIDDM or MODY or MODM or AODM).ti,ab.	10948
7	((obes* or overweight) adj5 diabet*).ti,ab.	6269
8	prediabetic state.tw.	31
9	(prediabetes or pre diabetes or pre-dm or subclinical diabetic or raised	17285
	glucose intolerance or impaired glucose level\$ or impaired glucose tolerance	
	or IGT or impaired fasting glucose or IFT or FPG or fasting plasma glucose or	
	impaired glucose regulation or impaired glucose metabolism or raised	
	glycated haemoglobin or raised glycated hemoglobin or high glycated Hb or	
	hyperglycaemia or hyperglycemia or without diabet* or without diagnosed	
	diabet*).tw.	
10	((prevent* or avoid* or delay* or decreas* or reduc*) adj2 (type II diabetes or	4520
	type 2 diabetes or T2D or DM or diabetes)).ti,ab.	
11	or/1-10	80240
12	exp Obesity/	14067
13	Obese.tw.	23680
14	(overweight or obese or over-weight or over weight or overeating or over	14192
	eating or over-eating).ti.	
15	exp Overweight/	15901
16	(BMI or body mass index).af.	64683
17	Weight gain/	2496
18	(Overweight or over weight or obesity or adipose).af.	48579
19	(body mass index or BMI).mp.	64681
20	(cardiovascular or cv or cvd or vascular or coronary).tw.	139427
21	heart disease\$.tw.	17801
22	cardiovascular risk factor\$.tw.	5514
23	or/12-22	95752
24	pedomet*.mp.	1861
25	((step* or walk*) adj2 (count* or sensor or meter)).ti,ab.	1940
26	Accelerometry/ or (accelerom* or actimeter or actigraph or actiwatch or	5008
	GT3X or fitbit).ti,ab.	
27	((activit* or move* or motion or energy or exercise) adj2 (monitor* or sens*	7415
	or detect* or count*)).tw.	
28	11 or 23	106036
29	24 or 25 or 26 or 27	9390
30	28 and 29	1210
31	limit 30 to yr="2000 - current"	1171

eTable 2: Citations of eligible studies for review

- Anderson D.R. Health Beliefs, Will to Live, Hope, and Social Support in a Pedometer-Based Exercise Intervention among Cardiac Rehabilitation Patients. 2015. Available at: https://etd.ohiolink.edu/!etd.send_file?accession=osu1434901973&disposition=i nline.
- Alonso-Domínguez R, Patino-Alonso MC, Sánchez-Aguadero N, García-Ortiz L, Recio-Rodríguez JI, Gómez-Marcos MA. Effect of a multifactorial intervention on the increase in physical activity in subjects with type 2 diabetes mellitus: a randomized clinical trial (EMID Study). *Eur J Cardiovasc Nurs*. 2019;18(5):399-409.
- 3. Andrews R, Cooper A, Montgomery A, et al. Diet or diet plus physical activity versus usual care in patients with newly diagnosed type 2 diabetes: The Early ACTID randomised controlled trial. *The Lancet*. 2011;378(9786):129-139.
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eTable 3: Summary of intervention characteristics by study

	components	method (including	sessions (time of each	interventio n (weeks)	and uptake
		format and provider)	session)		
P	edometers				
Counselling on physical activity was provided for all participants for 5 minutes and included advice on compliance with the current international recommendatio ns (to walk at least 10,000 steps daily and avoid a sedentary lifestyle). Physical activity was objectively recorded for Seven consecutive	Participants were given a leaflet as support	All study participants received standardised counselling for 10 minutes on physical activity and a healthy diet combined (5 mins physical activity and 5 mins on diet)	10 mins counselling	3 months	10,000 steps a day NR
_	Counselling on physical activity was provided for all participants for 5 minutes and included advice on compliance with the current international recommendatio ns (to walk at least 10,000 steps daily and avoid a sedentary lifestyle). Physical activity was objectively recorded for Seven consecutive days using a	PedometersCounselling on physical activity was provided for all participants for 5 minutes and included advice on compliance with the current international recommendatio ns (to walk at least 10,000 steps daily and avoid a sedentary lifestyle).Participants were given a leaflet as supportPhysical activity was objectively recorded for Seven consecutive days using aParticipants	Image: constraint of the second sec	Image: consecutive days using a(including format and provider)(time of each session)PedometersCounselling on physical activity was leaflet as provided for all participants for 5 minutes and included advice on compliance with the current international recommendatio ns (to walk at least 10,000 steps daily and avoid a sedentary lifestyle).All study participants received standardised counselling for 10 minutes on physical activity and 5 mins on diet)Physical activity was participants for 5 minutes and included advice on compliance with the current international sedemation as (to walk at least 10,000 steps daily and avoid a sedentary lifestyle).10 mins on diet)Physical activity was objectively recorded for Seven consecutive days using aPhysical activity and a least least lifestyle least life	Counselling on physical activity was provided for all participants for 5 minutes and included advice on complianceParticipants vere given a leaflet as supportAll study participants received standardised counselling for 10 minutes on physical activity and a healthy diet combined (5 mins physical activity and a healthy diet combined (5 mins physical activity and a healthy diet combined (5 mins on diet)10 mins counselling3 monthsWith the current international recommendatio ns (to walk at least 10,000 steps daily and avoid a sedentary lifestyle).Notice physical activity mas objectively recorded for Seven consecutive days using aNotice physical activity activity and a healthy diet combined (5 mins on diet)Notice physical activity and a healthy diet combined (5 mins on diet)Physical activity was objectively recorded for Seven consecutivePhysical activity activity and a beach activity

			digital pedometer with two piezoelectric sensors (Omron HJ-321 Tri-axis) placed on the right side of the waist.					
Anderson 2015	To evaluate the effect of pedometer tracking on exercise adherence among post- Cardiac rehabilitation patients in a randomized study with control participants engaging in usual care	NA	Pedometer worn daily with logbook use to record steps	NR	Unsupervised pedometer tracking after CR is complete. By specialist staff	1 at the beginning of the study	12	NA NR
Andrews 2011	To investigate the effects of diet and physical activity on blood pressure and glucose concentrations	NA	Each patient was given a pedometer (Digiwalker CW200, Yamax, Japan) and a folder containing	Usual care consisted of standard dietary and exercise advice after randomisation and at the end of the	The diet was not prescriptive; goals were negotiated individually with each	Dietary advice and goal setting was reinforced by nine 30 min appointment	6 months	NR 98%

			motivating literature and pages for recording daily physical activity (pedometer readings)	study, with reviews by a study doctor and nurse at baseline and at 6 and 12 months. This group was used as the control.	participant during their first session with the dietitian and were reviewed at each visit. Participants saw the dietitian for 1 h at randomisation and for 30 min at each of 3, 6, 9, and 12 months.	s with study nurses— roughly one every 6 weeks over the course of the study.		
Araiza 2006	Determine whether a	NA	Each participant wore a	Instructed to maintain their	In active group	NA - self monitored	6	NA
	recommendatio n to accumulate		pedometer throughout the	normal activity habits	participants were			NK
	10,000 steps per		day and was	throughout the	instructed to			
	day would result		trained how to	6-week	walk 10,000			
	in significant		use it.	intervention	steps on 5 or			
	improvements		Pedometers		more days of			
	glycaemic		on the waist		weeks			
	control, insulin		Steps were		weeks.			
	sensitivity,		recorded in an					
	cardiovascular		activity log.					
	risk, and							
	oxidative stress							
	in sedentary							

	patients with type 2 diabetes							
Bjorgaas 2008	Determine whether regular used of pedometers increases walking and/or enhances health related beneficial effect in type 2 diabetic participants	NA	Pedometer and logbook 3 weekdays twice per month	Participants were encouraged to increase the average daily time spent walking from one visit to another, guided by logbook	Participants meet FTF with study nurse baseline, 1 month, 3 months and 6 months	NR	26	Goals were set at every nurse meeting after baseline 68% completion rate amongst participants
Chudowolsk a-Kielkowska 2020	A randomized clinical trial of a nurse-led intervention that included goal setting and phone support to increase physical activity in sedentary older adults with cardiovascular risk factor in primary care setting compared to standard of care	NA	All randomized subjects received a simple pedometer (M2 Smart band, Enwei Technology Co. Ltd., Shenzhen, China) and were told to note the number of steps per day in a handed notebook. Subjects in the study group	Usual care with no step goal or supportive calls	10-min nurse- led tutorial with distributed hand outs on health benefits of regular physical activity	1 session with nurse	3 months	Minimum 7,000 steps per day

Cupples 2013	Examine the use of pedometer step count goals to promote physical activity for cardiac rehabilitation patients	NA	were told to achieve a goal of minimum 7000 steps per day, while the control group did not have a set goal and was just told to note the number of steps per day Pedometer, dairy to record step counts with feedback from facilitator	Facilitator recorded baseline pedometer data, but no feedback information was given	Face-to-face or by telephone, facilitator contact made weekly	Weekly contact with the facilitator	6	Gradual 10% increase in average daily count aiming for 10,000 steps/day 93% completion
Dasgupta 2017	Impact of intervention on physical activity, but also gauge biological effects by evaluating several cardio- metabolic measures	NA	To achieve a net increase over baseline of 3000 steps/day over 1 year using a pedometer, step count log and step count prescription	Received advice to engage in 30 to 60 mins of activity daily, consistent with usual care	Participants were typically seen by their physician in a clinical setting 3-4 times over a 12-15- month period.	3-4 times over a 12-15- month period. Time per session unclear for intervention group, in control group they were	52	3000 steps/day increase over 1 year 79% completion rate

						engaged in 30-40 mins of activity		
De Greef 2010	Investigate the benefits of a pedometer and a cognitive behavioural intervention for promoting PA in type 2 diabetes patients	Cognitive- behavioural therapy	Received pedometer and a pedometer diary during intervention as motivational tools.	Received usual care from their endocrinologist and a single education session about type 2 diabetes and PA which was the same as the first session of the intervention group	Group meetings which involved motivational interviewing, then an implementatio n plan was developed with coaches.	90-min group meetings, first three given every 2 weeks, the last two sessions were given over interval of 3 and 4 weeks.	12	At each session coaches set new goals 75% compliance rate
De Greef 2011 (1)	To promote PA and decreasing sedentary behaviour	Cognitive- behavioural therapy, the diabetes prevention program, the first step program and motivational interviewing	face-to-face session, a pedometer and telephone support	No intervention	face-to-face sessions and telephone support	Seven call into total and one interview	24	>10,000 steps/day 96% completion rate
De Greef 2011 (2)	Investigate whether a 12- week pedometer- based PA intervention delivered by a	NA	Pedometer and dairy to keep log of type of PA, duration and number of steps/days	No intervention, only received general care from GP	face-to-face delivery by GP or behaviour expert	90-min group counselling sessions over a 12-week period 9one session every 3 weeks).	12	NA

	trained GP					Participant in		
	individually can					the GP		
	he as effective					delivered		
	as group					group		
	delivery by					received		
	behavioural					three 15-min		
	evpert					ETF		
	expert					consultations		
Diedrich	To see whether	NR	Received a copy	Attended usual	Initial FTF	DSME	13	NA
2010	the self-help		of the Manpo-	DSME programs	assessment by	includes a 2 -		
	Manpo-Kei		Kei (guide to	only	, certified	hour		62%
	program can be		steps) book and	,	diabetes	assessment		completion
	a solution to		concise handout		educators	and 8 hours		rate
	promoting		summarizing the		prior to	of group		
	exercise in		key points of the		attending first	classes		
	people with		book and a		DSME			
	diabetes		pedometer		program			
	without adding				session.			
	significant				Questionnaire			
	content and				s mailed out			
	activities to a				at 3 months.			
	diabetes self-				Telephone			
	management				calls also			
	education				made to			
	(DSME) program				participants to			
					set up the			
					follow-up			
					appointment			
Engel 2006	Investigate the	NR	Pedometer and	Health-related	6 face-to-face	6 visits each	26	6000-
	impact of using		exercise log to	coaching	visits or	the time		8500 steps/d
	a pedometer on		record the	including	contacts by	varied		for healthy
	time spent		number of steps	behaviour	facilitator			older adults
	walking		each day	change	during the 6			and

				strategies to improve self- efficiency like goal setting	months of study			3500-5500 steps/d for older adults with chronic illnesses were considered as goals
Fayehun 2018	To evaluate whether 10,000 steps per day is believed to be a reasonable estimate of daily activity for healthy adults	NA	Pedometer and manual record for recording daily step counts	Continued with typical daily activities	Face-to-face and telephone	Face-to-face counselling each week until they reached 10,000 steps per day, telephone follow-up was also given at weeks 2, 6 and 10.	10	To accumulate 10,000 steps per day for 10 weeks. 85% completion rate
Greaney 2017	Examine the impact of the shape program, a weight gain prevention program designed for black overweight or obese women	Social cognitive theory with self- efficacy as primary mediator	Individuals randomized received, a) tailored behaviour change goals to promote the prevention of weight gain, skills training materials,	Participants were mailed semi-annual newsletters during the intervention period. The newsletter covered general wellness topics but not PA,	Coaching calls and motivational interviewing. Printed skills training material were provided to participants with assigned behaviour	Measuremen ts taken at baseline and 12 months. Sessions of PA were summaries into 1- and 10-min bouts of MVPA	52	Tailored behaviour change goals and step goals 62% completion rate

	living in the		weekly	nutrition of	r changes			
	rural South		interactive voice	weight	goals			
			response (IVR)	in clotte	800101			
			telephone calls					
			for self-					
			monitoring					
			monthly					
			telenhone					
			coaching from a					
			rogistorod					
			distition and a					
			no-cost 12					
			month					
			membershin to					
			a VMCA facility					
			of their choice					
Grev 2019	To assess the	BCT (Taxonomy	The intervention	Manual goals	Intervention	The	12 weeks	Goals set for
010 y 2015	effectiveness	v 1 2013)	("Evolife") was	were set hy	websites	researcher	12 WCCR3	hehaviour
	of the 12-week	v.1, 2015)	hased around a	narticinant	nrovide all	σονρ		change
	evolutionary		website that	individually	relevant	narticinants a		chunge
	mismatch-		aimed to	marviadany.	intervention	multisensory		94-97%
	framed self-		nrovide		information	nhysical		completion
	directed		narticinants		mormation	activity		rate
	intervention in		with			monitor to		Tate
	increasing PAI		information			wear for 7		
	and reducing FL		framed from			davs		
	We		an evolutionary			following the		
	also examined		mismatch			assessment		
	whether any		perspective.			visit. along		
	changes in		about physical			with a 3-		
	activity or diet		activity			day food		
	achieved by the		, and healthy			diary and set		
	intervention		, eating, and			of kitchen		

were sufficient	advice on how		scales to also	
to generate	to make		complete	
clinically	behavioural		over	
meaningful	changes to		the following	
changes in	improve health.		week. Full	
metabolic	One of the goals		instructions	
control and/or	was a daily step		on both the	
anthropometric	goal		activity	
risk markers for	and to help with		monitor	
developing type	this, participants		and food	
2 diabetes and	were given a		diary were	
cardiovascular	pedometer.		explained by	
disorder			the	
			researcher	
			and given	
			in printed	
			form for the	
			participants	
			to take away.	
			Activity	
			monitors and	
			completed	
			food diaries	
			were	
			collected by	
			the	
			researcher	
			approximatel	
			y 8 days after	
			each	
			assessment	
			(i.e.	

Houle 2011, 2012	To evaluate the impact of a home-based cardiac rehabilitation program led by a clinical nurse specialist on PA behaviour at 3, 6, 9 and 12 months after an acute coronary syndrome	Social cognitive theory framework	Participants given pedometer (Yamax Digiwalker SW-200), diary and information regarding PA after an acute coronary syndrome	Provided with standard advice on PA at discharge	Intervention delivered FTF by clinical nurse specialist before hospital discharge	when the activity monitoring had been completed) Follow-up sessions included one phone call within 2 weeks after discharge and 5 FTF consultations (at 6 weeks and 3, 6, 9 and 12 months after the event). Sessions lasted between 30- 60 mins	52	Intervention includes a goal setting element with target > 3,000 steps/d at baseline 69% completed the trial
Katzmarzyk 2011	To assess whether a pedometer- based	NA	Received the same educational materials but	Education group only received a brochure	Self- monitored daily with	Participants recorded their daily	2	NA 80%
	educational		were given the	importance of	engage in	sheet		rate
	intervention		YAMAX Digi-	physical activity	usual activity			
	could increase		Walker SW-200	for maintaining	then to			
	MVPA in short		pedometer to	health and	increase.			
	term and to		record steps	guidance on	Facilitator not			
	assess whether				involved in			

	change in steps/day is associated with change in MVPA			how to increase physical activity	delivery of intervention			
Kirk 2009	To assess whether those randomised to PA consultation delivered by a person or in written form increase PA levels over 6 and 12 months	Transtheoretical model of behaviour change	Self- instructional workbook included a pedometer	Received a two- page information leaflet by Tayside Diabetes network.	FTF consultation, workbook, follow-up phone calls	30 min FTF consultation with trained researcher at baseline and 6 months	52	NA 87% completion rate
Lewis 2020	The TAME health (Testing Activity Monitors' Effect on health) pilot randomized controlled trial aimed to investigate a low intensity intervention to increase PA and decrease cardiovascular disease risk within the primary care setting	Behavioural change techniques including goal setting on behaviour and health outcome, providing instructions and information on consequences, as well as facilitating social support	Participants in the pedometer group were given a digital pedometer (Digi-walker CW- 700/701, YAMAX, San Antonio, TX, USA) and a PA log to record their daily steps, activity time, and distance walked.	Participants in the EAM group were given an UP24 monitor by Jawbone (San Francisco, CA, USA) and downloaded the corresponding UP app on their personal smartphones	All participants received a brief 5 A's counselling consisting of components: assess, advise, agree, assist, and arrange.	FTF consultation with regular meeting over 12 weeks period	12	Goal setting could be used but was not specifically part of intervention 100% completion

Paula 2015	То	NA	Patients were	Control Group.	At baseline,	FTF	4 weeks	NA
	evaluate the		asked to	Patients	patients	consultation		
	effect of the		increase	received dietary	underwent	with two		100%
	DASH diet		physical activity	recommendatio	24-hour ABPM	office visits		
	associated with		by walking at	ns	and			
	increased		least 15 to 20	according to	their usual			
	walking on		minutes per day,	American	walking habits			
	ABPM in		5 days per week,	Diabetes	were assessed			
	patients with		in addition to	Association	by daily step			
	type 2		their baseline	guidelines	count			
	diabetes and		activities. A	6 and were	using a			
	uncontrolled		pedometer was	instructed to	pedometer			
	hypertension		provided to be	maintain their	during			
			used during the	usual	1week.Clinical			
			4-week	physical activity	, nutritional,			
			intervention	during the	and			
			period. During	study. A	physical			
			the	pedometer was	activity were			
			study, twice a	provided to	assessed and			
			week, text	be used every	laboratory			
			messages (SMS)	day exclusively	evaluations			
			were sent or	in the first and	were			
			phone calls	last week of the	performed.			
			were made to	study to record	This run-in			
			stimulate	usual PA	period			
			compliance with		involved two			
			the		office			
			general		visits. The			
			protocol. Patient		duration of			
			counselling on		the trial was 4			
			diet was		weeks and at			
			performed		the end			

			by the research dietitian (TPP) and on physical activity by the physical educator (AZN).		of the study, ABPM and anthropometri c and laboratory measurement s were performed. Patients were advised not to change any usual medication during the study.			
Pekmezi 2017	To assess whether women assigned to the Home-based, individually tailored Physical activity Print (HIPP) intervention would more greatly increase PA and related psychosocial variables at 6 months when compared with the control group	Social cognitive theory and the transtheoretical model	Accusplit pedometers and activity logs provided to encourage self- monitoring of exercise behaviour.	Received mailings with cancer prevention information on topics other than PA. These were received at time points identical to those of the intervention group	For self- reported data participants wore accelerometer s on their hip for 7 consecutive days at baseline and 6 months (contact with trial investigators). Accelerometer s were mailed to participants	Acceleromete r was always worn over the 7 days from baseline. Contact time at 6 months not reported	26	Goal setting used to measure self- regulation nature of intervention 61% returned at least three of the four updated surveys

Piette 2011	Evaluate the	CBT focused on	Intervention	Usual care	Telephone	The CBT	12 months	Patient
	impact of	depressive	patients	patients	delivered	program		manuals
	telephone-	symptoms and	participated in a	received: a copy		included an		included logs
	delivered	links between	12-month	of the Feeling		initial		that they
	cognitive	depression, PA	telephone-	Good Handbook		intensive		could
	behavioural	and diabetes	delivered CBT	-a self-help book		phase of 12-		use to
	therapy (CBT)	outcomes	program.	based		weekly		complete
	targeting			on cognitive		sessions		СВТ
	patients'		Six weeks after	behavioural		followed by		homework
	management of		completing their	therapy for		nine monthly		exercises and
	depressive		baseline	depression.		booster		to monitor
	symptoms,		assessment, all			sessions.		their
	physical		patients were			counsellors		progress
	activity levels,		sent an Omron			introduced		toward step-
	and diabetes-		HJ-720 ITC			concepts		count
	related		pedometer with			related to a		goals
	outcomes		a built-in clock			pedometer-		
			and electronic			based		86%
			memory.			walking		
			Pedometers			program.		
			were sent					
			blinded using a					
			removable					
			sticker, and					
			patients were					
			instructed to					
			wear the					
			pedometer					
			throughout					
			walking hours					
			for seven					
			consecutive					
			days.					

Plotnikoff	Explore the	the Theory of	Group 2:	Group 1:	Mixed FTF	Grp 2: The	18 months	NA
2013	effectiveness of	Planned	Participants in	received	(Grp 2) and	materials		
	two innovative/	Behaviour, the	this group	standard print	telephone	were tailored		74%
	theoretically	Health Belief	received a	PA educational	counselling	to be season		provided PA
	based	Model,	pedometer,	materials	(Grp 3)	specific		data at 18
	behavioural-	Protection	logbook, and	provided by the		(i.e., winter,		months
	change	Motivation	calendar to	Canadian		spring,		
	strategies to	Theory, Social	chart their	Diabetes		summer and		
	increase PA and	Cognitive	progress. (There	Association (i.e.,		autumn		
	reduce	Theory, and the	was no specific	control		versions)		
	haemoglobin	Transtheoretical	intervention	group).		and were		
	A1c (A1c) in	Model to predict	recommendatio			mailed every		
	T2DM adults	forward PA	n			3 months for		
		behaviour stage	regarding steps			12 months.		
		of change	per week.)			Study		
		transitions				participants		
			Group 3:			completed a		
			Addition of			stage		
			telephone			measure at		
			counselling			baseline, 3, 6		
						and 9 months		
						Grp 3:		
						counselling		
						was carried		
						out		
						by five		
						individuals		
						with relevant		
						degree		
						qualifications		
						related		

					to PA promotion and/or counselling and who received a 1- day, 7-h training course		
Silfee 2016 To determine b the preliminary ir effect th of a behavioural g intervention on ti the use of self- regulation a strategies s and moderate- h to-vigorous p physical activity w (MVPA) in overweight and obese adults with type 2 diabetes	behavioural intervention that included goal setting, time management, and enlisting social support to help participants plan their weekly PA.	Participants were given weekly PA logs and pedometers to self-monitor their PA for two weeks. The control group received information regarding their measured PA habits. At session three, both groups received the BodyMedia armband to wear for seven days. The intervention group reviewed	The control group received written recommendatio ns for PA for adults with T2DM, and a pedometer	FTF training 6 weeks prior to intervention was provided. Then during the intervention, they met individually with a researcher in person.	Both groups met individually with a researcher four times over five weeks. The first and second visits were one week apart. Visit three was scheduled two weeks after visit two. The third and fourth visits were one	7 days	PA goals were set. 88%

			and identified			During the		
			harriers to PA			first visit		
						both		
			They set			groups		
			PA goals and			completed		
			self-monitored			colf-		
			their BA			rogulation		
			The final visit			moscuromon		
			had both groups			te and		
			nad both groups			ts and		
			completing the			received a		
			post-test self-			Bodyiviedia		
			regulation			armband to		
			measurement			wear for		
			and			seven days.		
			receiving					
			information					
			regarding their					
			PA.					
Tudor-Locke	To assess if first	Program based	Pedometers	Received	Face-to-face	Initial 4	16	Increase PA >
2004	step program is	on theoretical	provided and	postcards	assessments	weeks		3000
	associate with	principles of	the program	thanking	at meeting	participants		steps/day.
	improvements	self-efficacy and	manual	participants for		were asked		
	in physical	social support	containing goal	taking part in		to attend		78%
	activity (steps		setting and	the study.		four weekly		completion
	per day) and		problem-solving			group		rate
	whether		exercises, as			meetings,		
	increased		well as			remaining 12		
	physical activity		calendars for			weeks		
	was related to		self-monitoring			participants		
	improvements		steps/day			asked to use		
	in cardiovascular		-			pedometers		
	health,					and calendars		
	glycaemic					for goal		

	control, and lipid profiles					setting and self- monitoring		
Van Dyck 2013	Examine the effects of physical activity program were mediated by theoretical constructs targeted by the intervention, both post- intervention and at 1 year	Intervention based on self- determination theory and the transtheoretical model	Accelerometer, pedometer and IPAQ. Pedometer and accelerometer were worn at the waist during waking hours for 7 days. Activity log was used to record step taken and the type duration of walking activities	Unclear	Face-to-face session, pedometer use and seven phone calls (tailored motivational interviewing)	Telephone calls ranged from 15 to 20 min spread over a 24- week period	24	NA 96% completion rate
Yates 2009	Investigate whether a pragmatic structured education program with and without pedometer use is effective for promoting physical activity and improving glucose tolerance	NA	Group 1 received a 3-h group-based structured education program designed to promote walking activity using personalized steps per- day goals and pedometers.	Group 3 received a brief information leaflet (control condition)	FTF	A single- session group based education program. The program is 180 min long; 105 min are dedicated to addressing the causes, complications , timeline, and identity	12 months	Sedentary participants were encouraged to increase their activity levels by at least 3,000 steps per day, equivalent to ~30 min of walking. 82%

	in those with		Group 2			of IGT and 75		
	impaired		received a 3-h			min		
	glucose		group-based			are targeted		
	tolerance (IGT)		structured			to addressing		
			education			the perceived		
			program			effectiveness		
			designed to			of exercise as		
			promote			a treatment		
			walking activity			for		
			using generic			IGT, walking		
			time-based			self-efficacy		
			goals.			beliefs,		
						barriers		
						to walking,		
						and self-		
						regulatory		
						strategies		
Yates 2017	To investigate	Protection	Walking Away	Control	The	2 follow up	52	Increasing PA
	whether an	motivation	from Type 2	participants	participants in	session: 12		by 500
	established	theory in which	diabetes	received a	the	and 24		steps/day
	behavioural	an association	mellitus, a	standardized	intervention	months		every
	intervention,	between	pragmatic 3-h	booklet	group were			fortnight
	Walking Away	perceived	group-based	detailing	provided with			
	from Type 2	disease severity	structured	information on	pedometer			71%
	diabetes	and the	education	Type 2 diabetes	and step/day			completion
	mellitus, is	intention to be	programme	mellitus risk	diary provided			rate
	effective at	physically active	incorporating	informed by	free. They			
	promoting and	in those with	pedometer use	Leventhal's	were			
	sustaining	Type 2 diabetes	with annual	common-sense	encouraged to			
	increased	mellitus has	follow-on	model and how	increase their			
	walking activity	been	refresher	physical activity	physical			
	when delivered	demonstrated	sessions were	and lifestyle	activity levels			
				change can be	up to 3000			

	within primary		offered to the	used to prevent	step/day over			
	care.		participants	or delay the	baseline levels			
				disease	depending on			
					individual			
					preference			
					and ability.			
					Participants			
					set an action			
					plan detailing			
					where, when			
					and how their			
					first proximal			
					goal would be			
					reached and			
					were			
					encouraged to			
					repeat this			
					process for			
					each new			
					goal.			
			Accele	erometer/Fitbits				
Claes 2020	To assess the	PATHway	Patients were	Usual care	PATHway	Participants	6 months	150 min of
	feasibility,	system involved	provided with		system	were		moderate
	acceptance, and	behaviour	accelerometer		installed in	instructed to		intensity PA
	short-term	change goal			participants	wear the		per week.
	clinical				home	Actigraph		
	effectiveness of					GT9X Link		83%
	the PATHway					on the		completion
	system for					nondominant		
	maintaining PA					wrist for 24 h		
	and physical					per day		
	fitness					during 7-		
						consecutive		

	of patients with CVD after completion of an ambulatory centre-based CR program					days.		
Frederix 2015	To assess medium-term effectiveness of a patient-specific, comprehensive cardiac tele- rehabilitation program in addition to standard ambulatory cardiac rehabilitation	NA	Yorbody accelerometer motion sensor used, internet- based tele- rehabilitation in addition to Centre-based rehabilitation	Centre-based rehabilitation alone	Psychologist aimed to improve patient self- efficiency to change prior lifestyle. SMS message sent out to provide motivational content	At least 2 exercise training sessions per week. Patients instructed to exercise for 45 to 60 mins per session	24	Predefined exercise training goal disseminated via SMS 90% complete the study as planned
Guiraud 2012	Assess the efficacy of a strategy, based on telephone support oriented by accelerometer measurements, on the adherence to PA recommendatio ns in cardiac patients not	NR	Accelerometer used to measure all PA outcomes	PA measured with accelerometer during the 8 th week of testing period	PA measurement s were recorded during a period of 2 months. Kinesiologist insisted on the importance of wearing the accelerometer . Each session	Patients participated in 45-minute fitness, gymnastics, relaxation, Qi Gong, or aquatic training sessions.	8	Goal setting for 2 weeks for EE outcome 69% of participants complete the trial

	achieving PA recommendatio ns				was monitored by a physiotherapis t or kinesiologist and supervised by a cardiologist			
Karstoft 2013	Evaluate the feasibility of free-living walking training in type 2 diabetic patients and to investigate the effects of interval-walking training versus continuous- walking training upon physical fitness, body composition	NA	Interventions All subjects received a JDMate, which was worn as a pedometer throughout the study. Subjects randomized to a training group used the JD Mate's training function, which, based on triaxial accelerometery, estimates training energy expenditure.	Subjects in the CON group were instructed to continue their habitual lifestyle for 4 months and had their JD Mate pedometer data uploaded monthly	FTF training sessions	Training groups were prescribed five sessions per week (60 min/session) and were controlled with an acceleromete r and a heart- rate monitor	4 months	NR

Lyons 2017	To determine the feasibility, acceptability, and effect on physical activity of an intervention combining a wearable physical activity monitor, tablet device, and telephone counselling among adults aged 55-79	App based on behaviour change techniques and adherence to theory-based recommendatio ns	Intervention group were lent a mini tablet mobile device (Apple iPad Mini, Apple Inc, Cupertino, CA) and a wearable electronic activity monitor (Up24, Jawbone Inc, San Francisco, CA) for home use during the study.	The wait-list control group did not receive any intervention until after their final assessment when they were provided the intervention in full	Self- monitoring but also some counselling sessions	Participants attended 4 scheduled visits of 15-20 mins	12 weeks	Goals were negotiated between the counsellors and individuals, with counsellors suggesting at least 7000 steps per day 100%
Lystrup 2020	years Investigate the effects of adding virtual activity groups to a multicomponent ambulatory activity monitoring intervention in managing chronic conditions such as obesity and type 2 diabetes.	NA	The Fitbit + Friends group served as the intervention group. Subjects in the Fitbit + Friends group were assigned to a virtual fitness group with 9 other individuals from their randomized block. Every subject in the	SoloFitbit subjects with the same secure Fitbit® and WhatsApp® platforms but did not assign them to any virtual sup-port groups. Their step counts were visible only to themselves and the research coordinator who	Subjects had in-person follow up sessions at 3 and 6 months with a research coordinator	Research coordinator provided individual feedback	6 months	Each participant either stated a specific step-count goal or were recommende d to reach 10,000

			Fitbit + Friends	gave identical				
			group was a	scripted				
			virtual "friend"	feedback to				
			with the rest of	both groups.				
			the group and					
			was able to see					
			a "leader board"					
			which tracked					
			individual step					
			counts and					
			ranked them in					
			order. Within					
			their					
			smartphone					
			applications,					
			Fitbit + Friends					
			subjects were					
			able to see in					
			real time their					
			daily step					
			counts in					
			comparison with					
			the rest of their					
			group on a					
			ranking board.					
Matrin 2015	To investigate	Smart texts	Participants	Control	Automated	Smart texts	1 week	10 000
	whether a fully	reflected	used their own	participants	smart text	provided		steps/day
	automated	behaviour	smartphones.	were blinded to	system	smartphone-		goal
	mobile health	change theories		the device		delivered		
	(mHealth)		Digital physical	interface		coaching 3		100%
	intervention		activity tracking			times/day		
	with tracking		was performed					

	and texting components would increase physical activity		using the Fitbug Orb (Chicago, IL) (Figure S1), a wearable, display-free, triaxial accelerometer that pairs with low-energy Bluetooth with compatible smartphones.					
Miyamoto 2017	Whether the use of tri-axial accelerometer can reduce sedentary time and increase non locomotive physical activity (LPA) and to investigate the effect of this intervention on parameters of glucose and fat metabolism in type 2 diabetes	NA	All participants wore a tri-axial accelerometer during intervention period and were given verbal instruction regarding their objectives	No instruction given in control group regarding physical activity, they wore an accelerometer but display was turned off so they could not receive any visual feedback	Visual feedback given to intervention groups and encourageme nt was provided by physical therapist to increase PA	Face-to-face meeting at start of intervention and at 4- and 8- week follow-up examinations . Time at meetings unreported	12	NA 97% completion rate
Paschali 2005	To assess whether giving activity feedback to	NA	Home-based intervention where participants	Counselling session has the same structure as intervention,	Participant received a manual at start of	8 counselling sessions, length not reported	12	NA NR
	obese,		received a	but review of	intervention.			

sedentary adults	manual	the past months	Individual		
with type 2	containing	exercise relied	counselling		
diabetes would	instructions on	upon data in the	sessions with		
improve their	self-regulation	subject diary	behaviour		
adherence to a	of exercise		therapist		
home-based	intensity and on		structured		
walking program	behavioural self-		sessions we		
	management.		provided		
	Focus on				
	accelerometer				
	data which was				
	processed by				
	computer				

NA: non-applicable; NR: not reported

Study	Random sequence	Allocation concealment	Blinding of outcome	Incomplete outcome data	Selective reporting
	generation		assessment		
Alonso-Dominguez 2019	LOW	LOW	LOW	LOW	LOW
Anderson 2015	UNCLEAR	UNCLEAR	HIGH	LOW	LOW
Andrews 2011	LOW	LOW	HIGH	LOW	LOW
Araiza 2006	UNCLEAR	UNCLEAR	UNCLEAR	UNCLEAR	UNCLEAR
Bjorgaas 2008	UNCLEAR	UNCLEAR	LOW	HIGH	LOW
Chudowolska-Kielkowska 2020	LOW	LOW	LOW	HIGH	LOW
Claes 2020	LOW	LOW	HIGH	LOW	LOW
Cupples 2013	LOW	LOW	LOW	LOW	UNCLEAR
Dasgupta 2017	LOW	UNCLEAR	LOW	LOW	LOW
De Greef 2010	LOW	LOW	LOW	LOW	LOW
De Greef 2011 (1)	UNCLEAR	UNCLEAR	LOW	LOW	LOW
De Greef 2011 (2)	LOW	LOW	LOW	LOW	LOW
Diedrich 2010	UNCLEAR	UNCLEAR	HIGH	HIGH	LOW
Engel 2006	UNCLEAR	UNCLEAR	LOW	LOW	HIGH
Feyehun 2018	LOW	LOW	HIGH	HIGH	UNCLEAR
Frederix 2015	LOW	HIGH	LOW	LOW	LOW
Greaney 2017	UNCLEAR	UNCLEAR	UNCLEAR	HIGH	UNCLEAR
Grey 2019	UNCLEAR	LOW	HIGH	LOW	LOW
Guiraud 2012	UNCLEAR	UNCLEAR	UNCLEAR	LOW	LOW
Houle 2011/12	LOW	UNCLEAR	LOW	LOW	LOW
Karstoft 2013	UNCLEAR	UNCLEAR	LOW	UNCLEAR	LOW
Katzmarzyk 2011	LOW	LOW	UNCLEAR	LOW	LOW
Kirk 2009	LOW	LOW	LOW	LOW	LOW
Lewis 2020	UNCLEAR	UNCLEAR	HIGH	LOW	UNCLEAR
Lyons 2017	LOW	LOW	HIGH	LOW	HIGH
Lystrup 2020	UNCLEAR	LOW	HIGH	LOW	HIGH
Martin 2015	LOW	UNCLEAR	LOW	LOW	LOW
Miyamoto 2017	LOW	UNCLEAR	UNCLEAR	LOW	LOW
Paschali 2005	LOW	UNCLEAR	HIGH	UNCLEAR	LOW
Paula 2015	UNCLEAR	LOW	UNCLEAR	LOW	LOW
Pekmezi 2017	LOW	UNCLEAR	UNCLEAR	LOW	LOW
Piette 2011	LOW	LOW	HIGH	LOW	LOW
Plotnikoff 2013	UNCLEAR	LOW	UNCLEAR	HIGH	LOW
Silfee 2016	UNCLEAR	LOW	HIGH	HIGH	UNCLEAR

eTable 4: Risk of bias study-by-study summary and overall by each domain

Tudor-Locke 2004	UNCLEAR	UNCLEAR	UNCLEAR	HIGH	LOW
Van Dyck 2013	LOW	LOW	LOW	LOW	LOW
Yates 2009	LOW	LOW	UNCLEAR	LOW	LOW
Yates 2017	LOW	LOW	LOW	LOW	LOW

Proportions by each judgement across all studies

Judgement	Random sequence	Allocation	Blinding of outcome	Incomplete outcome	Selective reporting
	generation	concealment	assessment	data	
Low	22 (58%)	20 (52%)	16 (42%)	27 (71%)	29 (76%)
High	0 (0%)	1 (3%)	12 (32%)	8 (21%)	3 (8%)
Unclear	16 (42%)	17 (45%)	10 (26%)	3 (8%)	6 (16%)