Additional file 1: Suppl Table 1 Step counting treadmill validation studies among wearable technologies in adults and older adults

Reference (first author)	Sample	Protocol (duration; speeds)	Wearable Technologies (location)	Accuracy	Bias	Precision
Adamakis[1] 2021	30 25.9 ± 5.7 19-43 63%	5-min; 128.7, 160.9 m/min	Accupedo iOS: ACiwa (waist) Pacer iOS: Piwa (waist) Runtastic iOS: Riwa (waist) Argus iOS: ARiwa (waist) Accupedo Android: ACAwa (waist) Pacer Android: PAwa (waist) Runtastic Android: RAwa (waist) Argus Android: ARAwa (waist)	MAPE: ACiwa: 2.05%, 1.37% Piwa: 2.05%, 1.37% Riwa: 2.62%, 1.37% ARiwa: 3.20%, 2.75% ACAwa: 1.51%, 0.82% PAwa: 1.56%, 0.82% RAwa: 2.85%, 0.82% ARAwa: 1.51%, 0.82%	Bland – Altman plots	Not reported
Ali[2] 2018	20 26 ± 3 18-65 85%	5-min; 53.4, 67.2, 79.8 m/min	3 Fitbit Flex: FFwr (wrist)	Not reported	MPE: -12%, -9%, -7%	ICC: 0.82, 0.78, 0.69
Alinia[3] 2017	15 21-31 47%	5-min; 41.7, 83.3, 133.3 m/min	Fitbit Zip: FZp (pant pocket) Fitbit One: FOc (chest) Fitbit Flex: FFwr (wrist)	MAPE: FZp: 5.5%, 3.7%, 5.5% FOc: 6.7%, 1.4%, 1.8% FFwr: 6.8%, 3.9%, 4.4%	Not reported	ICC: FZp: 0.91, 0.83, 0.71 FOc: 0.70, 1.37, 0.68 FFwr: 0.76, 1.07, 1.07
Clemes[4] 2010	68 19.2 ± 2.7 % not reported	3-min; 53.6, 67, 80.5, 93.9, 107.3 m/min	Silva: SLhr (hip; right) Silva: SLhl (hip; left) NL-1000: NLh (hip)	Not reported	MPE: SLhr: 30.5-9.3% SLhl: 46.9-6.7% NLh: 12.9-0.9%	Not reported

DeCocker[5] 2012	40 29.5 ± 7.7 50%	5-min; 53.3, 66.7, 80, 93.3, 106.7 m/min	Omron HJ-203: OMp (pant pocket) Omron HJ-203: OMb (carrier bag) Omron HJ-203: OMn (neck)	MAPE: OMp: 80%, 75%, 57.5%, 27.5%, 32.5% OMc: 47.5%, 22.5%, 10%, 10%, 7.5% OMn: 20%, 0%, 0%, 0%, 2.5%	MPE: OMp: -15 – 65% OMb: -5 – 20% OMn: -2.5 – 17.5%	ICC: 0.25, 0.27, 0.53, 0.73, 0.96
Ducharme[6] 2021	75 29.57 ± 5.56 21-39 51%	5-min; 13.4, 26.8, 40.2, 53.6, 67, 80.5, 93.9, 107.3, 120.7 m/min	GENEActiv: GAwr (wrist) GENEActiv: GAwa (waist) ActiGraph GT9X: AGwr (wrist) ActiGraph GT9X: AGwa (waist)	Not reported	Mean step error: GAwr: -112.90 to 53.30 GAwa: -10.43 to -0.04 AGwr: -127.55 to 89.85 AGwa: -1.32 to 24.24	SD (±): GAwr: 33.35 to 102.30 GAwa: 3.34 to 83.71 AGwr: 32.05 to 107.35 AGwa: 2.29 to 52.29
Feng[7] 2017	25 25.96 ± 7.86 18-53 44%	4-min; 54, 66, 78 m/min	APDM Opal: OPwa (waist) Actigraph wGT3X-BT: AGwa (waist) Axivity AX3: AXwa (waist)	Not reported	MPE: OPwa: 0.292% AGwa: -0.271% AXwa: -0.089%	95% CI: OPwa: (0.401-0.183) AGwa: (-0.372 to -0.170) AXwa: (-0.166 to -0.012)
Fokkema[8] 2017	31 32 ± 12 48%	10-min; 53.3, 80, 106.7 m/min	Polar Loop: PLwr (wrist) Garmin Vivosmart: GVwr (wrist) Fitbit Charge HR: FBwr (wrist) Apple Watch Sport: AWwr (wrist) Pebble Smartwatch: PSwr (wrist) Samsung Gear S: SGwr (wrist) Misfit Flash: MFh (hip) Jawbone Up Move: JBh (hip)	Test 1 MAPE: PLwr: 26.4%, 3.0%, 3.6% GVwr: 1.0%, -0.2%, 9.0% FBwr: -0.7%, 2.0%, 5.2% AWwr: 1.9%, 0.0%, 0.5% PSwr: 6.0%, 2.9%, 1.3% SGwr: 5.6%, 4.0%, 1.1%	Bland-Altman plots	Test 1 ICC: PLwr: 0.08, 0.26, 0.24 GVwr: 0.95, 0.57, 0.10 FBwr: 0.62, 0.20, 0.31 AWwr: 0.57, 0.93, 0.91 PSwr: 0.28, 0.34, 0.86, SGwr: 0.04, 0.02, 0.85

			Flyfit: FFa (ankle) Moves: MVp (pant pocket)	MFh: 15.2%, 5.4%, 6.0% JBh: 8.7%, 5.9%, 1.2% FFa: 16.1%, 5.3%, 2.3% MVp: 14.0%, -2.6%, 0.3% Test 2 MAPE: PLwr: 26.3%, 10.7%, 3.0% GVwr: 0.9%, 0.3%, 11.9% FBwr: -0.9%, 1.7%, 7.7% AWwr: 1.4%, 2.6%, 0.1% PSwr: 3.0%, 1.4%, 1.0% SGwr: 4.8%, 3.5%, 0.8% MFh: 18.1%, 8.5%, 7.5% JBh: 11.7%, 2.6%, 1.6% FFa: 19.5%, 7.0%, 6.8% MVp: 12.6%, -0.8%, -0.2%		MFh: 0.06, 0.26, 0.11 JBh: 0.12, 0.09, 0.71 FFa: 0.18, 0.31, 0.27 MVp: 0.15, 0, 0.25 Test 2 ICC: PLwr: 0.09, 0, 0.42 GVwr: 0.95, 0.95, 0 FBwr: 0.74, 0.27, 0.15 AWwr: 0.73, 0.52, 0.86 PSwr: 0.78, 0.77, 0.91 SGwr: 0, 0.17, 0.92 MFh: 0.15, 0.07, 0.08 JBh: 0.17, 0.56, 0.72 FFa: 0.17, 0.32, 0.08 MVp: 0, 0, 0.37
Foster[9] 2005	10 (lean) 10 (obese) 30 ± 13 32 ± 7 21-51 50%	15-min; 16.7, 33.3, 50 m/min	Omron HF-100: OMkl (knee; lean) Omron HF-100: OMko (knee; obese) Digi-Walker 2: DWkl (knee; lean) Digi-Walker 2: DWko (knee; obese) Stepwatch: SWal (ankle; lean) Stepwatch: SWao (ankle; obese)	Not reported	MPE: OMkl: 56%, 98%, 99% OMko: 66%, 94%, 97% DWkl: 36%, 89%, 100% DWko: 17%, 76%, 100% SWal: 99%, 100%, 100% SWao: 100%, 100%, 100%	SD: OMkl: 14, 2.9, 2.1 OMko: 10, 3.5, 2.2 DWkl: 11, 4.7, 2.6 DWko: 7, 7.3, 2.7 SWal: 0.56, 0.34, 0.30 SWao: 0.35, 0.26, 0.37
Grant[10] 2008	21 65-87	5-min;	ActivPAL: APt (thigh)	MAPE: only visualized in graph	Bland-Altman plots Mean difference:	SD: 437 ± 56

	52%	40.2, 54, 67.2, 79.8, 93.6 m/min	Digi-Walker SW-200: DWwa (waist) NL-2000: NLwa (waist)		APt: 2.6, 0.6, -0.1, 0.4, 0.4 SWwa: 184.3, 132.7, 71.8, 31.2, 4 NLwa: 85.4, 4.8, 0, -0.9, -2.4	490 ± 55 532 ± 47 585 ± 47 624 ± 43
Han[11] 2020	36 21.2 ± 4.5 18-65 50%	2-min; 53.3, 66.7, 80, 93.3, 106.7 m/min	Garmin Forerunner 235: GMwr (wrist) Polar M430: PLwr (wrist) Garmin Foot Pod: FPf (foot) Polar Stride Sensor Smart: SSf (foot)	MAPE: GMwr: 14.3%, 4.2%, 1.2%, 0.9%, 1.0% PLwr: 9.9%, 7.0%, 3.1%, 1.5%, 0.5% FPf: 0.4%, 0.5%, 0.5%, 0.5%, 0.6% SSf: 0.3%, 0.4%, 0.3%, 0.3%, 0.2%	Bland-Altman plots	CCI: GMwr: 0.919 PLwr: 0.908 FPf: 0.999 SSf: 1.000
Horvath[12] 2007	20 27.8 ± 8.8 45%	50 steps; 54, 80, 107 m/min	Yamax SW200: DWlm (left mid-axillary) Yamax SW200: DWrm (right mid-axillary) Yamax SW200: DWrt (right thigh) Yamax SW200: DWlt (left thigh) Yamax SW200: DWwa (waist)	Not reported	Net error: DWlm: 7.3%, 0.6%, -1.2% DWrm: 10.5%, 2.1%, -0.5% DWrt: 18.1%, 3.1%, -0.2% DWlt: 10.3%, 1.9%, 0.6% DWwa: 17.7%, 0.4%, -0.8%	Not reported
John[13] 2018	20 26.7 ± 4.9 40%	1-min; 53.4, 58.7, 64.1, 69.4, 74.8, 80.1, 85.4, 90.8,	Yamax Digiwalker SW200: DWwa (waist) OmronHJ720ITC: OMwa (waist) ActiGraph GT3X+: 3Xwa (waist) ActiGraph GT3X+: 3Xwr (wrist)	Not reported	Bias: DWwa: 1 – 21 OMwa: -5 – 6 3Xwa: 8 – 39 3Xwr: 32 – 46	SD: DWwa: 10-34 OMwa: 9-31 3Xwa: 7-19 3Xwr: 15-26

		96.1, 101.5, 106.8 m/min	ActiGraph GT9X: 9Xwa (waist) ActiGraph GT9X: 9Xwr (wrist)		9Xwa: 55 – 64 9Xwr: 66 – 72	9Xwa: 19-28 9Xwr: 11-18
Jung[14] 2020	32 26.03 ± 6.59 18-40 53%	5-min; 53.6, 107.3 m/min	Fitbit HR: FBrwrp (right wrist proximal) Fitbit HR: FBrwrd (right wrist distal) Fitbit HR: FBlwrp (left wrist proximal) Fitbit HR: FBlwrd (left wrist distal)	Not reported	Mean difference: FBrwrp: -13.47, 19.84 FBrwrd: -12.22, -6.06 FBlwrp: -20.63, 12.59 FBlwrd: -12.63, -2.72	95% CI: FBrwrp: (-25.39, -1.55), (-9.05, 48.74) FBrwrd: (-25.21, 0.78), (-31.48, 19.36) FBlwrp: (-37.8, -3.45), (-21.49, 46.68) FBlwrd: (-23.7, -1.55), (-25.67, 20.24)
Karaca[15] 2021	29 26.3 ± 6.2 18-40 0%	2-min; 33.3, 66.7, 100 m/min	ActiGraph wGT3X-BT: AGrwr (right wrist) ActiGraph wGT3X-BT: AGlwr (left wrist) ActiGraph wGT3X-BT: AGwa (waist) ActiGraph wGT3X-BT: AGra (right ankle) ActiGraph wGT3X-BT: AGua (upper arm)	MAPE: AGrwr: 41.7%, 16.3%, 25.1% AGlwr: 32.3%, 26.5%, 28.3% AGwa: 80.0%, 8.3%, 1.2% AGra: 12.4%, 1.0%, 4.9% AGua: 66.5%, 11.7%, 3.3%	Bland-Altman plots: AGrwr: -62.3, -32.7, -64.5 AGlwr: -48.6, -54.2, -97 AGwa: -120.9, -15.5, 2 AGra: -12.2, 1, -12.7 AGua: -99.3, -23.2, -5.2	SD: AGrwr: 48.2-31.5 AGlwr: 51.8-37.3 AGwa: 34.6-4.5 AGra: 39.4-3.6 AGua: 27.5-18.7
Lowe[16] 2021	18 30.6 18-65 56%	5-min; 53.6, 80.5, 107.3 m/min	Walk Star: iPhone 5: WSp (pant pocket) Accupedo: Samsung S3 mini: SSp (pant pocket)	Not reported	Bland-Altman plots could not be extricated for treadmill	ICC: WSp: 0.145-0.951 SSp: -0.400-0.544 DWwa: 0.027-0.383 OMwa: 0.631-0.977

			Yamax Digi-Walker CW-700: DWwa (waist) Omron HJ-720ITC: OMwa (waist) Tanita PD-724: TAn (neck)			TAn: 0.391-0.866
Nuss[17] 2020	30 22.93 ± 3.3 50%	7-min; 45.6, 67, 91.1, 112.6, 134.1, 147.5, 160.9 m/min	ActiGraph: AGrwr (right wrist) ActiGraph: AGlwr (left wrist) ActiGraph: AGrh (right hip) ActiGraph: AGlh (left hip)	MAPE: AGrwr: 50.31-31.33% AGlwr: 50.35-36.84% AGrh: 54.52-1.55% AGlh: 59.97-1.55%	Not reported	CCC: AGrwr: -0.008 – 0.1 AGlwr: -0.006 – 0.08 AGrh: -0.004 – 0.99 AGlh: -0.002 – 0.92
O'Brien [18] 2018	43 39.4 ± 15.2 20-64 58%	6-min; 40, 53.3, 66.7, 93.3, 106.7, 120 m/min	Omron HJ-320: OMwa (waist) ActiGraph GT3X: AGwa (waist) PiezoRx: PRwa (waist)	Not reported	Bland-Altman plots	ICC: OMwa: 0.14, 0.28, 0.94, 0.39, 0.53, 0.66, 0.62 AGwa: 0.16, 0.22, 0.70, 0.96, 0.93, 0.98, 0.72 PRwa: 0.71, 0.80, 0.98, 0.99, 0.95, 0.99, 0.97
O'Brien[19] 2021	19 68.8 ± 2.3 37%	6-min; 40, 53.3, 93.3, 106.7 m/min	Omron HJ-320: OMwa (waist) ActiGraph GT3X: AGwa (waist) PiezoRx: PRwa (waist)	MAPE: OMwa: 78.3 - 1.5% AGwa: 72.9 - 1.4% PRwa: 8.4 - 1.2%	Bland-Altman plots	ICC: OMwa: 0.26, 0.36, 0.85, 0.92, 0.91 AGwa: -0.13, -0.20, 0.30, 0.94, 0.71 PRwa: 0.18, 0.98, 0.96, 0.92, 0.90
Reil[20] 2016	30 27.9 ± 4.2	2-min;	ActiGraph wGT3X-BT: AGwa (waist)	Not recorded	Bland-Altman plots MPE:	ICC: AGwa: 0.03, 0.55, 0.64

	50%	53.3, 80, 106.7 m/min	Mother: MOwa (waist)		AGwa: 26.7%, 3.7%, 2.8% MOwa: 2.5%, 1.3%, 1.9%	MOwa: 0.88, 0.96, 0.89
Rhudy[21] 2018	15 20.2 ± 3.8 18.2-32.9 % not reported	1.5-min; 72 m/min	gyroscope: PEAKwr (wrist) AC - setting: ACwr (wrist) FFT - setting: FFTwr (wrist) gyroscope: PEAKa (ankle) AC - setting: ACa (ankle) FFT - setting: FFTa (ankle)	Not reported	Bland-Altman plots	ICC: PEAKwr: 0.640 ACwr: 0.962 FFTwr: not reported PEAKa: 0.991 ACa: 0.926 FFTa: 0.985
Simonsen[22] 2020	30 28.20 ± 4.33 13%	3-min; 33.3, 50, 66.7 m/min	Polar M200: PMf (forearm) Polar A300: PAf (forearm) Samsung Galaxy S9: SSp (pant pocket) Dunlop Sport: DSwa (waist)	Not reported	Bland-Altman plots SES: PMf: 20.39, 14.15, 19.87 PAf: 22.43, 14.28, 19.78 SSp: 9.17, 9.41, 15.94 DSwa: 22.40, 14.16, 19.36	Correlation coefficient: PMf: -0.19, 0.29, 0.23 PAf: -0.23, 0.24, 0.13 SSp: 0.52, 0.86, 0.76 DSwa: 0.10, 0.22, 0.32
Svarre[23] 2020	30 26.6 ± 6.2 18-64 60%	5-min; 26.7, 40, 53.3, 66.7, 80, 93.3 m/min	Garmin Vivosmart HR: GVwr (wrist) StepWatch 3: SWa (ankle)	MAPE: GVwr: 26.35%, 3.49%, 1.27%, 0.61%, 0.61%, 6.45% SWa: 3.60%, 0.35%, 0.09%, 0.08%, 0.08%, 0.09%	Bland-Altman plots	SD (±): GVwr: 23.63, 4.10, 1.67, 0.61, 0.68, 11.46 SWa: 6.03, 1.00, 0.12, 0.09, 0.10, 0.12
Swartz[24] 2003	66 28.6 ± 10 47%	3-min;	Yamax SW-200: DWwaf (waist; front)	Not reported	MPE: visualized only	Not reported

		54, 67, 80, 94, 107 m/min	Yamax SW-200: DWwab (waist; back) Yamax SW-200: DWwas (waist; side)			
Tedesco[25] 2019	18 65-74 61%	3-min; 16.7, 25, 33.3 m/min	Fitbit Charge 2: FCD (D wrist) Fitbit Charge 2: FCND (ND wrist) Garmin VivoSmart HR+: GVD (D wrist) Garmin VivoSmart HR+: GVND (ND wrist) Philips Health Watch: PHD (D wrist) Philips Health Watch: PHND (ND wrist) Withings Pulse Ox: WPD (D wrist) Withings Pulse Ox: WPND (ND wrist) Omron HJ-72OITC: OM (waist) ActiGraph GT9X-BT: AGW (waist) ActiGraph GT9X-BT: AGA (ankle) D = dominant ND = non-dominant	MAPE: FCD: 44.53%, 29.31%, 27.65% FCND: 44.86%, 28.33%, 26.50% GVD: 54.74%, 22.32%, 7.78% GVND: 53.01%, 25.66%, 9.99% PHD: 51.30%, 28.39%, 20.38% PHND: 44.76%, 20.88%, 11.24% WPD: 86.07%, 76.20%, 59.90% WPND: 86.98%, 81.55%, 57.45% OM: 77.60%, 58.92%, 32.76% AGW: 87.05%, 77.20%, 62.99% AGA: 51.20%, 31.78%, 8.87%	Bland - Altman plots: FCD: -101.06, 20.5, -181.18 FCND: -91.35, 19.5, 19.19 GVD: -118.29, -50.71, -18.63 GVND: -111.41, -58.53, -19.75 PHD: -110, -44.56, 8.93 PHND: -82.65, -29.19, 6.31 WPD: -200.41, -181.18, -155.31 WPND: -201.59, -188.59, -144.56 OM: -177.76, -140.59, -84.94 AGW: -207.91, -183.65, -159.63 AGA: -107.85, -69.21, -19.47	ICC: FCD: 0.44, 0.30, 0.13 FCND: 0.44, 0.41, 0.12 GVD: 0.36, 0.64, 0.91 GVND: 0.46, 0.58, 0.79 PHD: 0.41, 0.44, 0.47 PHND: 0.45, 0.44, 0.63 WPD: 0.22, 0.13, 0.17 WPND: 0.24, 0.18, 0.26 OM: 0.24, 0.22, 0.23 AGW: 0.11, 0.17, 0.18 AGA: 0.51, 0.52, 0.83

Tophoj[26] 2018	20 25.6 ± 2 50%	100-steps; 33.3, 66.7, 75.0, 91.7 m/min	Fitbit Surge: FSwr (wrist) Fitbit Charge HR: FCwr (wrist) Microsoft Band 2: MBwr (wrist) A&D Activity Monitor: ADh (hip)	Not reported	Bland – Altman plots MPE: FSwr: -8%, -2%, -2%, -6% FCwr: 15%, 18%, 21%, 7% MBwr: -15%, 0%, 0%, 0% ADh: -53%, 1%, 2%, 2%	ICC: FSwr: 0.58 FCwr: 0.35 MBwr: 0.79 ADh: 0.96 SD: FSwr: 23, 9, 8, 13 FCwr: 56, 50, 36, 36 MBwr: 46, 4, 3, 3 ADh: 42, 4, 3, 2
Toth[27] 2017	25 26 ± 8 18-57 % not reported	2-min; 26.8, 53.6, 80.5, 107.2, 134.1, 160.9 m/min	StepWatch 3: SWac100 (ankle; cadence setting 100%) StepWatch 3: SWac83 (ankle; cadence setting 83%) StepWatch 3: SWac70 (ankle; cadence setting 70%) StepWatch 3: SWac60 (ankle; cadence setting 60%) StepWatch 3: SWas18 (ankle; sensitivity 18) StepWatch 3: SWas16: (ankle; sensitivity 16) StepWatch 3: SWas14: (ankle; sensitivity 14) StepWatch 3: SWas13: (ankle; sensitivity 13) StepWatch 3: SWas12: (ankle; sensitivity 12)	Not reported	Percentage of Criterion Steps: SWac100: 108.9%, 99.6%, 99.6%, 99.4%, 75.5%, 70.5% SWac83: 124.0%, 101.6%, 99.6%, 99.7%, 98.0%, 95.9% SWac70: 130.5%, 121.6%, 108.8%, 101.0%, 99.6%, 99.4% SWac60: 149.5%, 149.8%, 119.3%, 108.4%, 101.0%, 100.5% SWas18: 106.8%, 100.3%, 100.2%, 99.6%, 98.1%, 99.2%	Not reported

					SWas16: 110.5%, 103.4%, 104.4%, 99.6%, 99.1%, 99.7% SWas14: 126.3%, 115.0%, 106.0%, 99.7%, 99.7%, 99.6% SWas13: 130.5%, 121.6%, 108.8%, 101.0%, 99.6%, 99.4% SWas12: 135.8%, 125.2%, 111.2%, 101.4%, 100.2%, 99.5%	
Vetrovsky[28] 2019	20 34.3 ± 11.6 25%	3-min; 40, 50, 60, 70 m/min	Fitbit Charge 2: FCwr (wrist) Garmin vivofit 1: G1wr (wrist) Garmin vivofit 3: Gwr3 (wrist) Omron HJ-322U-E: OMwa (waist) SmartLAB walk+: SLn (neck)	MAPE: FBwr: 10%, 4%, 1%, 2% G1wr: 24%, 7%, 3%, 2% G3wr: 13%, 8%, 1%, 1% OMwa: 45%, 7%, 1%, 1% SLn: 18%, 4%, 1%, 1%	MPE: FBwr: 3%, 0%, -1%, -2% G1wr: -24%, -7%, -2%, -2% G3wr: 4%, 4%, -1%, -1% OMwa: -44%, -7%, -1%, -1% SLn: -18%, -3%, 0%, 0%	CCC: FBwr: 0.38, 0.82, 0.99, 0.90 G1wr: 0.11, 0.66, 0.95, 0.96 G3wr: 0.45, 0.46, 0.99, 0.97 OMwa: 0.11, 0.21, 0.99, 0.99 SLn: 0.22, 0.59, 0.99, 0.98

CCC = concordance correlation coefficients; CCI = correlation confidence interval; CI = confidence interval; ICC = intra-class coefficient; MAPE = mean absolute percentage error; MPE = mean percentage error; PE = percent error; SES = standard error of the estimate; SD = standard deviation.

Population descriptions are presented as means ± standard deviation, year ranges, and percent females. Speeds were converted from mph, km/h, or m/s into m/min if necessary. Values are presented for each speed for each device. Inconsistencies across the rows in the table are due to discrepancies in the article reports.

Search was performed using an expanded Boolean string of (((step*) AND (treadmill*)) AND (adult*)) AND ((valid*) OR (reliab*)) in search engines PubMed, SPORTDiscuss, Web of Science, and CINHAL. Studies were included if the validation of step-counting devices was performed on a treadmill at walking speeds using the criterion standard of direct observation in ostensibly healthy adults. The exclusion criteria were: populations under the age of 18 years, indistinguishably combined step data for children/youth and adults, incline > 0% grade, non-standardized treadmill speed, unspecified walking/jogging/running bouts, overground/stair/track walking, and steps not reported as an outcome.

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