SUPLEMENTARY MATERIAL A: METHODS

In the supplementary material A are

- full electronic search strategy that was done to the MEDLINE (Ovid) database for the literature search (table A1).
- study, participant, intervention and outcome information extracted from the studies included in the review (table A2).
- obtained and confirmed data from original studies (table A3).
- conversion of given results to the mean and SD values (table A4).
- the priority list that defines the order of outcome variables measuring walking for synthesis of the results (table A5).

Table A1. The search strategy in the MEDLINE (Ovid) database.

#	Searches	Results 14.1.2019	Results 10.1.2020
1	Video Games/	4534	5104
2	Virtual Reality/	613	1426
3	Virtual Reality Exposure Therapy/	448	551
4	virtual reality.mp.	8278	9851
5	augmented reality.mp.	1396	1800
6	mixed reality.mp.	191	273
7	User-Computer Interface/	35191	36463
8	game technolog*.mp.	44	46
9	gamificati*.mp.	331	481
10	gamified.mp.	126	187
11	exergam*.mp.	496	612
12	computer gam*.mp.	1228	1323
13	wearable computing.mp.	71	84
14	digital rehabilitation.mp.	8	12
15	Wii*.mp.	949	1026
16	Sony Move*.mp.	1	1
17	Xbox*.mp.	156	176
18	X-box*.mp.	1762	1945
19	Playstation*.mp.	77	79
20	Kinect*.mp.	1006	1156
21	Intel Realsense*.mp.	3	8
22	webcam technology.mp.	3	3
23	motion detection.mp.	1262	1355
24	Motion sensor gam*.mp.	1	1
25	motion-controlled gam*.mp.	5	6
26	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25	50089	54183
27	Rehabilitation/ or exp Exercise Therapy/	62230	66343
28	therapeutic exercise.mp.	910	983
29	exp Physical Therapy Modalities/	140502	148700
30	exp Exercise/	173602	187759
31	physical rehabilitation.mp.	1689	1858
32	physiotherap*.mp.	23401	25339
33	physical therap*.mp.	50567	53497
34	27 or 28 or 29 or 30 or 31 or 32 or 33	337782	360238
35	Randomized Controlled Trials as Topic/	120416	129932
36	randomized controlled trial/	474451	498448
37	Random Allocation/	97207	101853
38	Double-Blind Method/	149037	155671
39	Single Blind Method/	26115	27955
40	clinical trial/	514077	520737
41	clinical trial, phase i.pt.	18563	19850
42	clinical trial, phase ii.pt.	29941	31917
43	clinical trial, phase iii.pt.	14503	16174
44	clinical trial, phase iv.pt.	1632	1818
45	controlled clinical trial.pt.	92865	93516
46	randomized controlled trial.pt.	474451	498448
47	multicenter study.pt.	243805	264599
48	clinical trial.pt.	514077	520737
49	exp Clinical Trials as topic/	320731	335578
50	35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49	1271424	1338136
51	(clinical adj trial$).tw.	323540	351381
52	((singl$ or doubl$ or treb$ or tripl$) adj (blind$3 or mask$3)).tw.	161134	168770
53	PLACEBOS/	34190	34687
54	placebo$.tw.	201037	210823
55	randomly allocated.tw.	25520	27572
56	(allocated adj2 random$).tw.	28631	30811
57	51 or 52 or 53 or 54 or 55 or 56 or 57	576243	615001
58	50 or 57	1506846	1593063
59	case report.tw.	282087	300339
60	letter/	1012544	1058044
61	historical article/	349577	356143
62	59 or 60 or 61	1629568	1699138
63	58 not 62	1472735	1557049
64	26 and 34 and 63	673	765
			51

Table A2. Study, participant, intervention and outcome information extracted from the studies included in the review.

Domain	Extracted data
Study Identification	Country, sources of funding and author information
Methods	Study design and aim of the study
Population	Inclusion and exclusion criteria, group differences, characteristics' of participant as described in the studies
Interventions	Description of the interventions in experimental and comparison groups: duration, setting, type of training, used technology, guidance, exercise program (sessions in week, session time, session description, progression), adherence, follow-up procedure, additional information that review author wanted to highlight
Outcomes	Outcomes measuring walking measured at baseline, after intervention and when available, after follow-up period (name, type, unit of measurement, measured values, number of participants analyzed, direction (lower/upper is better), data value (endpoint/change from baseline)
	Main results of outcomes measuring walking

Table A3. Information requested from original studies (n=18) and actions made.

Study	Reason for request	Response	Actions
Chow & Mann 2015 [1]	TUG change from baseline results reported (t test)	Endpoint Mean and SD values received via email	Endpoint values added to data extraction
Fung et al. 2012[2]	2MWT results reported as change% from baseline	Numerical data not received	Study excluded from meta-analysis
Htut et al. 2018 [3]	TUG results presented graphically	Endpoint Mean and SD values received via email.	Endpoint values added to data extraction
Khushnood et al. 2019 [4]	Participants' ages not reported	Mean age of participants under 60 years of old (information received via email)	Study excluded from the review (Reason: Wrong population)
Lauzé et al. 2017 [5]	TUG and Walking Speed results reported as change from baseline	Endpoint Mean and SD values not received	Change values are used in meta-analysis (the groups did not differ at basline)
Liao, Chen, & Wang 2019 [6]**; Liao, Chen, Lin, et al. 2019** [7]	Participants might be same in studies	Requested information not received	Liao et al. 2019 excluded from meta-analysis (Reason: Participant definition in trial registration)
Lin et al. 2007 [8]	Comparison of pre- and post-intervention values for Walking Speed on four different terrains perented graphically	Numerical data not received	Study excluded from meta-analysis
Maillot et al. 2012 [9]	TUG and 6MWT results reported as change from baseline	Endpoint Mean and SD values received via email.	Endpoint values added to data extraction
Mirelman et al. 2016 [10]	Study participants were from three cohorts, one of which included participants with neurological disorder.	2MWT results received by three cohorts.	Two cohorts, which matched review's inclusion criteria, added to meta-analysis
Monteiro-Junior et al. 2017 [11]	TUG and Walking speed results reported as change from baseline	Endpoint Mean and SD values received via email.	Endpoint values added to data extraction
Ray et al. 2012 [12]	Baseline characteristics information by groups not reportes	Participant data not received	Information remains missing from narrative synthesis
Sajid et al. 2016 [13]	6MWT results not reported	Results are not available to studies past 8 years (Information received via email)	Study excluded from meta-analysis
Santamaría et al. 2018 [14]	TUG results reported as p-values	Endpoint Mean and SD values received via email.	Endpoint values added to data extraction
Smaerup et al. 2015 [15]	DGI results reported as change from baseline	Endpoint Mean and SD values not received	Change values are used in meta-analysis (the groups did not differ at baseline)

Szturm et al. 2011 [16]	TUG results reported as change from basline, Walking Speed results presented graphically	Endpoint Mean and SD values received via email	Endpoint values added to data extraction
Tollar et al. 2019 [17]	6MWT and DGI post-intervention values not reported	Endpoint Mean and SD values received via email	Endpoint values added to data extraction
Uzor & Baillie 2019 [18]	Walking speed results presented graphically	Endpoint Mean and SD values received via email.	Endpoint values added to data extraction

Table A4. Calculation of the mean and standard deviation (SD) values in RCTs (n=7).

Study	Reported outcomes	Values calculated	Method
Bieryla & Dold 2013 [19]	median, lower IQR, upper IQR	mean, SD	Recommendation {q1, m, q3; n} [20]
Bieryla 2016 [21]	median, lower IQR, upper IQR	mean, SD	Recommendation {q1, m, q3; n}[20]
Eggenberger et al. 2015 [22]	mean, SE	SD	SD=SE*√N
Pichierri et al. 2012 [23]	median, lower IQR, upper IQR	mean, SD	Recommendation {q1, m, q3; n}[20]
Rendon et al. 2012 [24]	median, min, max	mean, SD	Recommendation {a, m, b; n}[20]
Schättin et al. 2016 [25]	median, lower IQR, upper IQR	mean, SD	Recommendation {q1, m, q3; n}[20]
Smaerup et al. 2015 [15]	mean, lower CI, upper CI	SD	SD=√N*(upper CI-lower CI)/2*tinv

Table A5. The priority list of outcome variables measuring walking in the studies included in the review.

#	Measurement	Unit of result	Direction	Incidence	Validity	Reliability	References
1	Timed "Up & Go" *) (e.g. TUG, 8ftUG, iTUG)	second	↓	40	2-3/3	Test-retest: 4/4 Inter-rater: 4/4 Intra-rater: 4/4	[26–29]
2	Walking speed*) (e.g. 4-m test, 10-m test, GAITRite)	milli-second, second, minute	↑	23	3/3 Normal pace ↑	Test-retest: 3-4/4 Inter-rater: 4/4	[27,29–33]
3	2MWT, 6MWT	feet, yard, meter	↑	16	3/3	Test-retest: 4/4 Inter-rater: 4/4	[29,34–36]
4	Functional Gait Assessment, Dynamic Gait Index, Tinetti Gait	score	↑	9	2-3/3	Test-retest: 4/4 Inter-rater: 3/4 Intra-rater: 3/4	[27,37–41]

Validity: 1/3 = small [r<.03], 2/3 = medium [r=.03-.05], 3/3 = large [r>.05] [42]
Reliability: 1/4 = poor [ICC<.05], 2/4 = moderate [ICC=.5-.75], 3/4 = good [ICC=.75-.9], 4/4 = excellent [ICC>.90] [43]
*) Single-task

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