

Information and Communication Technologies for Managing Frailty: A Systematic Literature Review

Antonio Miguel Cruz^{1,2,3*}, Laura Monsalve⁴, Anna-Maria Ladurner¹, Luisa Fernanda Jaime⁴, Daniel Wang¹, Daniel Alejandro Quiroga⁴

¹Department of Occupational Therapy, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB, Canada. ²Glenrose Rehabilitation Research, Innovation & Technology (GRRIT) Hub, Glenrose Rehabilitation Hospital, Edmonton, AB, Canada. ³Faculty of Applied Health Sciences, University of Waterloo, Waterloo, ON, Canada. ⁴School of Medicine and Health Sciences, Universidad del Rosario, Bogota, Colombia.

SUPPLEMENTARY DATA

Supplementary Table 1. Peer-reviewed Literature Search Strategy.

Medline February 26, 2020.

#	Query	Results
1	exp Frailty/	2113
2	(frail* or fragility).mp. [mp=title, 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]	43515
3	1 or 2	43515
4	exp Information Technology/	307
5	exp Information Systems/	221651
6	exp Technology/	406871
7	exp Communication/	301525
8	exp Computer Communication Networks/	90424
9	exp Telecommunications/	89270
10	exp Speech Recognition Software/	704
11	exp Internet/	77093
12	exp Internet Access/	36
13	exp Telemedicine/	27196
14	exp Telerehabilitation/	324
15	exp Wearable Electronic Devices/	10927
16	exp Wireless Technology/	3372
17	exp Monitoring, Ambulatory/	28002
18	exp Electronics, Medical/	6439
19	exp Self-Help Devices/	11366
20	exp Cell Phone/	10269
21	exp Text Messaging/	2662
22	exp Electronic Mail/	2641
23	exp Computers/	77325
24	exp Computers, Handheld/	7352
25	exp Mobile Applications/	5334
26	exp Cloud Computing/	564
27	exp Software/	154078
28	exp Computing Methodologies/	957184

SUPPLEMENTARY DATA

29	(Pedar-X or sensor*).mp. [mp=title, 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]	389180
30	(internet or world wide web or telecommunication* or (web-based not web-based survey*) or cloud-based).mp. [mp=title, 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]	122798
31	(information adj2 (technolog* or system*)).mp. [mp=title, 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]	88721
32	(cellphone* or smartphone* or ((cell* or mobile or smart) adj2 (phone* or telephone*)) or personal-digital assistant or personal-data-assistant* or pocket-pc*).mp. [mp=title, 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]	25644
33	((Text* adj2 messag*) or short message service or SMS or texting).mp. [mp=title, 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]	10110
34	((e-mail* not (e-mail*-survey or e-mail*-questionnaire*)) or (email* not (email-survey* or email*-questionnaire*)) or electronic-mail or electronic-messag*).mp. [mp=title, 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]	16691
35	(app or apps or applications or ((mobile or software) adj3 application)).mp. [mp=title, 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]	482927
36	((mobile adj3 health) or mhealth or ehealth or m-health or e-health).mp. [mp=title, 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]	15935
37	(Telemedicine or tele-medicine or telehealth or tele-health or tele-monitor* or telemonitor* or tele-care or telecare or tele-consult* or teleconsult* or tele-therap* or teletherap* or telerehab* or tele-rehab* or e-rehab* or ((remote or virtual) adj4 rehab*)).mp. [mp=title, 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]	35642
38	((remote* or video) adj3 (assess* or consult* or monitor*)).mp. [mp=title, 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]	14258
39	((((speech or voice) adj2 recognition) or Alexa or cortana or Siri or google-home or teach-back communication*).mp. [mp=title, 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]	7080
40	((wearable or wireless or medical or assistive or self-help or portable) adj4 (device* or technolog* or electronic*)).mp. [mp=title, 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]	75554

SUPPLEMENTARY DATA

41	((device* or tool*) adj4 (Windows or Mac or LINUX or measur* or assess* or monitor*)).mp. [mp=title, 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]	109297
42	((continuous or intermittent or physiological) adj3 (monitor* or track*)).mp. [mp=title, 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]	23843
43	(computer* or computing or software or hardware or laptop* or tablet* or ipad*).mp. [mp=title, 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]	1035581
44	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 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43	3050590
45	3 and 44	4585
46	limit 45 to ("all child (0 to 18 years)" or "young adult (19 to 24 years)" or "adult (19 to 44 years)" or "young adult and adult (19-24 and 19-44)" or "middle age (45 to 64 years)" or "middle aged (45 plus years)")	2849
47	limit 46 to "all aged (65 and over)"	2518
48	45 not (46 not 47)	4254
49	(osteoporosis or animals or heart or cancer or cells or fracture or bone or mineral).ti.	2431842
50	48 not 49	3534
51	limit 50 to yr="2010 -Current"	2443

Web of Science February 26, 2020

#	Query	Results
1	TOPIC: (frail* or fragility)	54,839
2	TOPIC: (Pedar-X or sensor*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years</i>	1,114,669
3	TOPIC: ((internet or world wide web or telecommunication* or (web-based not web-based survey*) or cloud-based)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years</i>	397,222
4	TOPIC: ((information NEAR/2 (technolog* or system*))) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years</i>	284,337
5	TOPIC: ((cellphone* or smartphone* or ((cell* or mobile or smart) NEAR/2 (phone* or telephone*)) or personal-digital assistant or personal-data-assistant* or pocket-pc*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years</i>	90015
6	TOPIC: (((Text* NEAR/2 messag*) or short message service or SMS or texting)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=All years</i>	22,407

SUPPLEMENTARY DATA

7	TOPIC: (((e-mail* not (e-mail*-survey or e-mail*-questionnaire*)) or (email* not (email-survey* or email*-questionnaire*)) or electronic-mail or electronic-messag*)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	35,210
8	TOPIC: ((app or apps or applications or ((mobile or software) NEAR/3 application))) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	4,003,249
9	TOPIC: (((mobile NEAR/3 health) or mhealth or ehealth or m-health or e-health)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	20,320
10	TOPIC: ((Telemedicine or tele-medicine or telehealth or tele-health or tele-monitor* or telemonitor* or tele-care or telecare or tele-consult* or teleconsult* or tele-therap* or teletherap* or telerehab* or tele-rehab* or e-rehab* or ((remote or virtual) NEAR/4 rehab*)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	29,340
11	TOPIC: (((remote* or video) NEAR/3 (assess* or consult* or monitor*))) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	31,409
12	TOPIC: (((speech or voice) NEAR/2 recognition) or Alexa or cortana or Siri or google-home or teach-back communication*)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	34,708
13	TOPIC: (((wearable or wireless or medical or assistive or self-help or portable) NEAR/4 (device* or technolog* or electronic*))) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	131,727
14	TOPIC: ((device* or tool*) NEAR/4 (Windows or Mac or LINUX or measur* or assess* or monitor*)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	230,024
15	TOPIC: (((continuous or intermittent or physiological) NEAR/3 (monitor* or track*))) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	41,879
16	TOPIC: ((computer* or computing or software or hardware or laptop* or tablet* or ipad*)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	2,663,234
17	#16 OR #15 OR #14 OR #13 OR #12 OR #11 OR #10 OR #9 OR #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	7,772,872
18	#17 AND #1 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	7,458
19	TI=((child* or adolescent* or teen* or "young adult*" or youth* or toddler*)) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	1,198,394
20	#18 NOT #19 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	7,393
21	TI=(osteoporosis OR animals OR heart OR cancer OR cells OR fracture OR bone OR mineral) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=All years</i>	4,830,024
22	#20 NOT #21 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC</i> <i>Timespan=2010-2020</i>	4640

SUPPLEMENTARY DATA

EMBASE February 26, 2020

#	Query	Results
1	exp frailty/	9353
2	(frail* or fragility).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	72985
3	1 or 2	72985
4	exp automatic speech recognition/	1028
5	exp sensor/	103262
6	exp wireless communication/	5081
7	exp smartphone/	11151
8	exp mobile phone/	26864
9	exp personal digital assistant/	1418
10	exp tablet computer/	881
11	exp text messaging/	4664
12	exp mobile application/	10628
13	exp assistive technology device/	907
14	exp assistive technology/	1752
15	(Pedar-X or sensor*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	490150
16	(internet or world wide web or telecommunication* or (web-based not web-based survey*) or cloud-based).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	179829
17	(information adj2 (technolog* or system*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	128311
18	(cellphone* or smartphone* or ((cell* or mobile or smart) adj2 (phone* or telephone*)) or personal-digital assistant or personal-data-assistant* or pocket-pc*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	37371
19	((Text* adj2 messag*) or short message service or SMS or texting).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	14532
20	((e-mail* not (e-mail*-survey or e-mail*-questionnaire*)) or (email* not (email-survey* or email*-questionnaire*)) or electronic-mail or electronic-messag*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	36536

SUPPLEMENTARY DATA

21	(app or apps or applications or ((mobile or software) adj3 application)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	522691
22	((mobile adj3 health) or mhealth or ehealth or m-health or e-health).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	14189
23	(Telemedicine or tele-medicine or telehealth or tele-health or tele-monitor* or telemonitor* or tele-care or telecare or tele-consult* or teleconsult* or tele-therap* or teletherap* or telerehab* or tele-rehab* or e-rehab* or ((remote or virtual) adj4 rehab*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	47087
24	((remote* or video) adj3 (assess* or consult* or monitor*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	16207
25	((((speech or voice) adj2 recognition) or Alexa or cortana or Siri or google-home or teach-back communication*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	9233
26	((wearable or wireless or medical or assistive or self-help or portable) adj4 (device* or technolog* or electronic*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	182727
27	((device* or tool*) adj4 (Windows or Mac or LINUX or measur* or assess* or monitor*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	178413
28	((continuous or intermittent or physiological) adj3 (monitor* or track*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	35956
29	(computer* or computing or software or hardware or laptop* or tablet* or ipad*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	1883358
30	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 or 26 or 27 or 28 or 29	3378282
31	3 and 30	9511
32	limit 31 to (child or adult <18 to 64 years>)	2947
33	limit 32 to aged <65+ years>	1265
34	31 not (32 not 33)	7829
35	(osteoporosis or animals or heart or cancer or cells or fracture or bone or mineral).ti.	2983106
36	34 not 35	5245
37	limit 36 to yr="2010 -Current"	4169

SUPPLEMENTARY DATA

CINAHL February 26, 2020

#	Query	Results
S1	Frailty Syndrome	2,636
S2	frail* or fragility	20,450
S3	Communication	189,688
S4	Wireless Communications	12,326
S5	Communication Skills	25,637
S6	Communications Media	15,554
S7	Telecommunications	3,164
S8	Technology	161,027
S9	Assistive Technology Services	1,970
S10	Assistive Technology	11,186
S11	Information Technology	44,282
S12	Assistive Technology Devices	7,221
S13	Wearable Sensors	2,253
S14	Voice Recognition Systems	1,466
S15	Computing Methodologies	600
S16	Information Systems	94,028
S17	Computer Communication Networks	3,628
S18	Internet	66,224
S19	Telemedicine	18,231
S20	Telerehabilitation	519
S21	Telehealth	18,134
S22	Electrical Equipment and Supplies	1,750
S23	Cellular Phone	2,156
S24	Text Messaging	3,667
S25	Instant Messaging	487
S26	Email	13,518
S27	Telephone	40,843
S28	Computers, Portable	2,626
S29	Computers, Hand-Held	4,643
S30	Computers and Computerization	10,912

SUPPLEMENTARY DATA

S31	Mobile Applications	9,988
S32	Simulation	49,613
S33	Pedar-X or sensor*	52,032
S34	(internet or world wide web or telecommunication* or (web-based not web-based survey*) or cloud-based)	148,648
S35	(information N2 (technolog* or system*))	60,323
S36	(cellphone* or smartphone* or ((cell* or mobile or smart) N2 (phone* or telephone*)) or personal-digital assistant or personal-data-assistant* or pocket-pc*)	16,604
S37	((Text* N2 messag*) or short message service or SMS or texting)	5,771
S38	((e-mail* not (e-mail*-survey or e-mail*-questionnaire*)) or (email* not (email-survey* or email*-questioelectronic-mail or electronic-mennaire*)) or essag*)	14,018
S39	(app or apps or applications or ((mobile or software) N3 application))	152,193
S40	((mobile N3 health) or mhealth or ehealth or m-health or e-health)	20,606
S41	(Telemedicine or tele-medicine or telehealth or tele-health or tele-monitor* or telemonitor* or tele-care or telecare or tele-consult* or teleconsult* or tele-therap* or teletherap* or telerehab* or tele-rehab* or e-rehab* or ((remote or virtual) N4 rehab*))	23,484
S42	((remote* or video) N3 (assess* or consult* or monitor*))	5,716
S43	((((speech or voice) N2 recognition) or Alexa or cortana or Siri or google-home or teach-back communication*))	5,627
S44	((wearable or wireless or medical or assistive or self-help or portable) N4 (device* or technolog* or electronic*))	101,011
S45	(device* or tool*) N4 (Windows or Mac or LINUX or measur* or assess* or monitor*)	199,726
S46	((continuous or intermittent or physiological) N3 (monitor* or track*))	6,331
S47	(computer* or computing or software or hardware or laptop* or tablet* or ipad*)	559,326
S48	S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S45 OR S46 OR S47	1,378,686
S49	S1 OR S2	20,450
S50	S48 AND S49	5,124
S51	S48 AND S49	1,232
S52	S51	949
S53	S50 not (S51 not S52)	4,841
S54	TI(osteoporosis OR animals OR heart OR cancer OR cells OR fracture OR bone OR mineral)	452,268
S55	S53 not S54	2,815

SUPPLEMENTARY DATA

Supplementary Table 2. Levels of evidence (According to Teasell's approach (Available from: <https://pdfs.semanticscholar.org/2b08/beaff788b361f6e3f5ca37ed8fda616b3fa9.pdf>.)

Level of evidence	Description
Level 1a	More than one randomized controlled trial with PEDro scores ≥ 6 . Includes within subject's comparison with randomized conditions and cross-over designs
Level 1b	One randomized controlled trial with a PEDro score ≥ 6 . Includes within subject's comparison with randomized conditions and cross-over designs.
Level 2	Randomized controlled trial, PEDro score < 6 ; Non-RCTS and Cohort studies (using at least 2 similar groups with one exposed to a particular condition).
Level 3	Case-Control: A retrospective study comparing conditions, including historical controls.
Level 4	Case Series, retrospective chart review; Pre-Post, a prospective trial with a baseline measure, intervention, and a post-test using a single group of subjects; or Post-Study, a prospective post-test with two or more groups, intervention, then post-test using a single group of subjects
Level 5	Observational, studies using cross-sectional analysis to interpret relations; Clinical Consensus, expert opinion without explicit critical appraisal, or based on physiology, biomechanics or "first principles"; or Case Report, pre-post or case studies (n=1).
Conflicting	In the absence of evidence, agreement by a group of experts on the appropriate treatment course. Consensus opinion is regarded as the lowest form of evidence. As such, it is arguably not considered evidence at all. Disagreement between the findings of at least 2 RCTs or where RCTs are not available. Where there are more than 4 RCTs and the results of only one was conflicting, the conclusion was based on the results of the majority of the studies, unless the study with conflicting results was of higher quality.