Supplementary Material

Search Strategy

The terms and preliminary keywords used were:

(Tech\* or device or sens\* or internet or web or mobile or app\* or wearable) AND

(monitor\* or measur\* or assess\* or record\* or track\* or captur\* or evaluat\* or sens\*)

AND (biomechanic\* or gait or kinematic\*) AND

(home or communit\* or remote or portable or free living)

Table A – Tabulated Description of Search Terms

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Concept** | **Population** | **Outcome** | **Context** |
| Tech\* | Monitor\* | Human | Biomechanic\* | Home (may have home-based) |
| Device | Measur\* |  | Gait | Community |
| Sens\* | Assess\* |  | Kinematic\* | Remote |
| Internet / web | Record\* |  |  | Free living or free-living |
| Mobile | Track\* |  |  | Portable |
| App\* | Captur\* |  |  |  |
| Wearable | Evaluat\* |  |  |  |
|  | Sens\* |  |  |  |

Completed Searches

**Ovid Medline** Run 29.07.2021 = 2084

Ovid MEDLINE(R) ALL <1946 to July 28, 2021>

1 tech\*.mp. 3576986

2 exp "Equipment and Supplies"/ 1536270

3 sens\*.mp. 2505843

4 "Internet of Things"/ or Internet/ or Internet-Based Intervention/ 77285

5 web.mp. 136728

6 mobile.mp. 115584

7 app\*.mp. 7186984

8 Humans/ or Wearable Electronic Devices/ or Monitoring, Ambulatory/ 19530772

9 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 24614336

10 monitor\*.mp. 1042277

11 measur\*.mp. 3866216

12 assess\*.mp. 3592382

13 record\*.mp 1255451

14 track\*.mp 172040

15 captur\*.mp. 209546

16 evaluat\*.mp. 4174316

17 sens\*.mp. 2505843

18 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 11366604

19 biomechanic$.mp. or Biomechanical Phenomena/ 159483

20 Gait Analysis/ or Gait/ 30543

21 kinematic$.mp. or Biomechanical Phenomena/ 138727

22 19 or 20 or 21 193785

23 home\*.mp. 642967

24 community.mp. 614784

25 Remote Sensing Technology/ or remote.mp. 84956

26 free living.mp. 16497

27 portable.mp. 33174

28 23 or 24 or 25 or 26 or 27 1326588

29 9 and 18 and 22 and 28 4375

30 29 4375

31 limit 30 to (english language and yr="2015 -Current") 2084

**SCOPUS** Search Strategy results = 3885 Run 29.07.2021

TITLE-ABS-KEY ( tech\* )  OR  TITLE-ABS-KEY ( device )  OR  TITLE-ABS-KEY ( mobile )  OR  TITLE-ABS-KEY ( internet )  OR  TITLE-ABS-KEY ( sens\* )  OR  TITLE-ABS-KEY ( app\* )  OR  TITLE-ABS-KEY ( wearable )  AND  TITLE-ABS-KEY ( measur\* )  OR  TITLE-ABS-KEY ( assess\* )  OR  TITLE-ABS-KEY ( track\* )  OR  TITLE-ABS-KEY ( sens\* )  OR  TITLE-ABS-KEY ( record\* )  OR  TITLE-ABS-KEY ( evaluat\* )  OR  TITLE-ABS-KEY ( monitor\* )  OR  TITLE-ABS-KEY ( captur\* )  AND  TITLE-ABS-KEY ( remote )  OR  TITLE-ABS-KEY ( home )  OR  TITLE-ABS-KEY ( communit\* )  OR  TITLE-ABS-KEY ( free-living )  OR  TITLE-ABS-KEY ( portable )  AND  TITLE-ABS-KEY ( gait )  OR  TITLE-ABS-KEY ( biomechanic\* )  OR  TITLE-ABS-KEY ( kinematic\* )  AND  LANGUAGE ( english )  AND  PUBYEAR  >  2015

**PEDro** Search 23.08.2021

technolog\* AND gait OR osteoarthritis AND technolog\* from 2015 onwards = 41 results

Exclusion Criteria

**Table B - Exclusion Criteria**

|  |  |
| --- | --- |
| **Category** | **Reason** |
| Data / Metric | Outcome of the measures is not a specific kinematic or kinetic metric e.g. spatiotemporal, biomechanical, gait, force or pressure measure.  For example outcomes describing pattern of fall, quantity of physical activity, exercise adherence, self-reported / objective outcomes are excluded.    Modalities of the Activities of daily living ADL are measured e.g sitting, standing (not within a TUG) |
| Technology | Actual technology not specified e.g. paper relates to methodology only, application of an algorithm, or the hypothetical / theoretical capability of technology.    Technology was not validated against laboratory based existing ‘gold’ standard technology.    Technology already considered ‘gold standard’ as per list in table 1. |
| Population | Is not human or no human testing has taken place. |
| Context | Technology not suitable for use remotely: Remote is defined as being capable of being used outside of a traditional fixed laboratory setting.  Technology should be portable as a minimum and could be used in a clinical, community, home or ambulatory setting. |
| General | Is a systematic or scoping review.    Not a peer reviewed journal article. E.g. conference abstract  Published prior to 2015.    Not in English language. |