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International prospective register of systematic reviews

NHS National Institute for Health Research

UNIVERSITY of York
Centre for Reviews and Dissemination

Systematic review

1. * Review title.

Give the title of the review in English

Do physical activity interventions combining self-monitoring with other strategies provide an additional benefit compared to self-monitoring alone?

2. Original language title.

For reviews in languages other than English, give the title in the original language. This will be displayed with the English language title.

3. * Anticipated or actual start date.

Give the date the systematic review started or is expected to start.

26/06/2020

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

28/02/2021

5. * Stage of review at time of this submission.

Tick the boxes to show which review tasks have been started and which have been completed. Update this field each time any amendments are made to a published record.

Reviews that have started data extraction (at the time of initial submission) are not eligible for inclusion in PROSPERO. If there is later evidence that incorrect status and/or completion date has been supplied, the published PROSPERO record will be marked as retracted.

This field uses answers to initial screening questions. It cannot be edited until after registration.

The review has not yet started: No

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Review stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	No	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Provide any other relevant information about the stage of the review here.

6. * Named contact.

The named contact is the guarantor for the accuracy of the information in the register record. This may be any member of the review team.

Tomas Vetrovsky

Email salutation (e.g. "Dr Smith" or "Joanne") for correspondence:

Dr Vetrovsky

7. * Named contact email.

Give the electronic email address of the named contact.

tomas.vetrovsky@gmail.com

8. Named contact address

Give the full institutional/organisational postal address for the named contact.

Na Veselou 698, 26601 Beroun, Czech Republic

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

+420724600710

10. * Organisational affiliation of the review.

Full title of the organisational affiliations for this review and website address if available. This field may be completed as 'None' if the review is not affiliated to any organisation.

Charles University, Faculty of Physical Education and Sport, Prague, Czech Republic

Organisation web address:

11. * Review team members and their organisational affiliations.

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Give the personal details and the organisational affiliations of each member of the review team. Affiliation refers to groups or organisations to which review team members belong. **NOTE: email and country now MUST be entered for each person, unless you are amending a published record.**

Dr Tomas Vetrovsky. Charles University, Faculty of Physical Education and Sport, Prague, Czech Republic
Dr Agnieszka Borowiec. Department of Epidemiology, Cardiovascular Disease Prevention and Health Promotion, National Institute of Cardiology, Warsaw, Poland
Mr Roman Jurik. Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic
Dr Charlotte Wahlich. Population Health Research Institute, St George's University of London, United Kingdom
Assistant/Associate Professor Witold Smigielski. Department of Demography and Social Gerontology, University of Lodz, Poland
Assistant/Associate Professor Michal Steffl. Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic
Dr James Tufano. Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic
Professor Wojciech Drygas. Department of Epidemiology, Cardiovascular Disease Prevention and Health Promotion, National Institute of Cardiology, Warsaw, Poland
Assistant/Associate Professor Petr Stastny. Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic
Professor Tess Harris. Population Health Research Institute, St George's University of London, United Kingdom
Assistant/Associate Professor Lukasz Malek. Department of Epidemiology, Cardiovascular Disease Prevention and Health Promotion, National Institute of Cardiology, Warsaw, Poland

12. * Funding sources/sponsors.

Details of the individuals, organizations, groups, companies or other legal entities who have funded or sponsored the review.

None

Grant number(s)

State the funder, grant or award number and the date of award

13. * Conflicts of interest.

List actual or perceived conflicts of interest (financial or academic).

None

14. Collaborators.

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members. **NOTE: email and country must be completed for each person, unless you are amending a published record.**

15. * Review question.

State the review question(s) clearly and precisely. It may be appropriate to break very broad questions down into a series of related more specific questions. Questions may be framed or refined using PI(E)COS or similar where relevant.

Do physical activity interventions combining self-monitoring with other strategies provide an additional benefit compared to self-monitoring alone?

16. * Searches.

State the sources that will be searched (e.g. Medline). Give the search dates, and any restrictions (e.g. language or publication date). Do NOT enter the full search strategy (it may be provided as a link or

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attachment below.)

We will search the following electronic bibliographic databases: PubMed, SPORTDiscus (via EBSCO), and Scopus, EMBASE. The search strategy will combine terms to identify physical activity interventions using self-monitoring ("pedometer", "activity monitor", "Fitbit", etc.) AND terms signalling the presence of the active control group using the self-monitoring alone ("active control", "three arms", "alone", "with and without", etc.). The search will be limited to the English language. Studies published from the inception of the databases until June 2020 will be sought. Additional studies will be identified employing the snowball search technique, i.e. going through the reference lists of eligible papers and previously published systematic reviews as well as through the studies citing the eligible papers.

17. URL to search strategy.

Upload a file with your search strategy, or an example of a search strategy for a specific database, (including the keywords) in pdf or word format. In doing so you are consenting to the file being made publicly accessible. Or provide a URL or link to the strategy. Do NOT provide links to your search **results**.

Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Do not make this file publicly available until the review is complete

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied in your systematic review.

Physical activity interventions using self-monitoring.

19. * Participants/population.

Specify the participants or populations being studied in the review. The preferred format includes details of both inclusion and exclusion criteria.

All studies recruiting adults aged 18 or over will be included; i.e., studies in healthy adults, those at risk of disease, as well as those diagnosed with a specific disease will be included.

Exclusion criteria: studies conducted with people aged <18

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the interventions or the exposures to be reviewed. The preferred format includes details of both inclusion and exclusion criteria.

Physical activity interventions that combine objectively-assessed self-monitoring (using pedometers and activity monitors) and at least one other intervention strategy (e.g. counselling, prompting, social support).

21. * Comparator(s)/control.

Where relevant, give details of the alternatives against which the intervention/exposure will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.

Only studies with an active control group using self-monitoring alone will be included. As self-monitoring is inherently related to goal setting, studies with an active control group using self-monitoring and goal-setting

will also be included. Similarly, studies, where the active control group receives brief one-time advice related to self-monitoring of physical activity, will be included as well. However, studies comparing two different intensities of support (both including self-monitoring), but lacking the active control group will be excluded.

22. * Types of study to be included.

Give details of the study designs (e.g. RCT) that are eligible for inclusion in the review. The preferred format includes both inclusion and exclusion criteria. If there are no restrictions on the types of study, this should be stated.

Only randomised controlled trials will be included.

23. Context.

Give summary details of the setting or other relevant characteristics, which help define the inclusion or exclusion criteria.

24. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurement are made, if these are part of the review inclusion criteria.

Physical behaviour objectively assessed using pedometers or accelerometers (i.e., time spent in moderate-to-vigorous physical activity, step count, sedentary time, etc.).

* Measures of effect

Please specify the effect measure(s) for you main outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Effect sizes (Hedge's g)

25. * Additional outcome(s).

List the pre-specified additional outcomes of the review, with a similar level of detail to that required for main outcomes. Where there are no additional outcomes please state ‘None’ or ‘Not applicable’ as appropriate to the review

Patient-reported outcomes (i.e. health-related quality of life, measures of mental health, self-efficacy, enjoyment). Adherence to study protocol.

* Measures of effect

Please specify the effect measure(s) for you additional outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Effect sizes (Hedge's g)

26. * Data extraction (selection and coding).

Describe how studies will be selected for inclusion. State what data will be extracted or obtained. State how this will be done and recorded.

Two review authors will independently assess the risk of bias in included studies using the Cochrane Risk of bias tool. Titles and abstracts of studies retrieved using the search strategy and those from hand-searching the reference lists will be screened by two review authors to identify studies that potentially meet the

eligibility criteria. The full text of these potentially eligible studies will be retrieved and assessed for eligibility by the same two review authors. Any disagreement will be resolved through discussion with a third reviewer. An excel spreadsheet will be used to extract data; extracted information will include among others: study population (number of participants, age, sex), details of the intervention (length, intervention components, behaviour change techniques), details of the comparison group, and outcomes and times of measurement.

27. * Risk of bias (quality) assessment.

State which characteristics of the studies will be assessed and/or any formal risk of bias/quality assessment tools that will be used.

Two review authors will independently assess the risk of bias in included studies using the Cochrane Risk of bias tool.

28. * Strategy for data synthesis.

Describe the methods you plan to use to synthesise data. This **must not be generic text** but should be **specific to your review** and describe how the proposed approach will be applied to your data. If meta-analysis is planned, describe the models to be used, methods to explore statistical heterogeneity, and software package to be used.

- The primary outcome is the change in objectively assessed physical behaviour (i.e. time spent in moderate-to-vigorous physical activity, step count, sedentary time, etc.) at follow-up compared to baseline.
- Secondary outcomes may include patient-reported outcomes (i.e. health-related quality of life, measures of mental health, self-efficacy, enjoyment) and adherence to study protocol.
- As the outcomes are measured on different scales (e.g., step count vs minutes spent in moderate-to-vigorous physical activity), continuous data will be analysed using standardised mean difference and reported with a 95% confidence interval. If dichotomous data are reported, odds ratios will be used and reported with a 95% confidence interval.
- As we expect to find between-study heterogeneity, a random-effects model will be most appropriate for the meta-analysis.
- If trials with multiple relevant arms are identified, we will perform the necessary adjustments to the data before performing the meta-analysis, for example, splitting the comparator group to avoid double-counting.
- We will present data on forest plots where appropriate.
- Statistical heterogeneity will be assessed and reported using the I^2 statistic.
- We will formally test for subgroup differences when examining potential effect modifiers.
- If sufficient studies can be meta-analysed, a funnel plot to detect publication bias will be used.
- Meta-regression will be used to assess trends by different lengths of follow-up, if appropriate.
- All analyses will be performed using package *metafor* in R.

29. * Analysis of subgroups or subsets.

State any planned investigation of 'subgroups'. Be clear and specific about which type of study or

participant will be included in each group or covariate investigated. State the planned analytic approach.

The subgroup analyses according to intervention component (e.g. phone support), population (e.g. older adults), and length of intervention will be conducted.

30. * Type and method of review.

Select the type of review, review method and health area from the lists below.

Type of review

Cost effectiveness
No

Diagnostic
No

Epidemiologic
No

Individual patient data (IPD) meta-analysis
No

Intervention
Yes

Meta-analysis
Yes

Methodology
No

Narrative synthesis
No

Network meta-analysis
No

Pre-clinical
No

Prevention
Yes

Prognostic
No

Prospective meta-analysis (PMA)
No

Review of reviews
No

Service delivery
No

Synthesis of qualitative studies
No

Systematic review
Yes

Other
No

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Health area of the review

Alcohol/substance misuse/abuse
No

Blood and immune system
No

Cancer
No

Cardiovascular
No

Care of the elderly
No

Child health
No

Complementary therapies
No

COVID-19
No

Crime and justice
No

Dental
No

Digestive system
No

Ear, nose and throat
No

Education
No

Endocrine and metabolic disorders
No

Eye disorders
No

General interest
Yes

Genetics
No

Health inequalities/health equity
No

Infections and infestations
No

International development
No

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Mental health and behavioural conditions
No

Musculoskeletal
No

Neurological
No

Nursing
No

Obstetrics and gynaecology
No

Oral health
No

Palliative care
No

Perioperative care
No

Physiotherapy
No

Pregnancy and childbirth
No

Public health (including social determinants of health)
Yes

Rehabilitation
Yes

Respiratory disorders
No

Service delivery
No

Skin disorders
No

Social care
No

Surgery
No

Tropical Medicine
No

Urological
No

Wounds, injuries and accidents
No

Violence and abuse
No

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31. Language.

Select each language individually to add it to the list below, use the bin icon to remove any added in error.
English

There is not an English language summary

32. * Country.

Select the country in which the review is being carried out. For multi-national collaborations select all the countries involved.

Czech Republic
England
Poland

33. Other registration details.

Name any other organisation where the systematic review title or protocol is registered (e.g. Campbell, or The Joanna Briggs Institute) together with any unique identification number assigned by them. If extracted data will be stored and made available through a repository such as the Systematic Review Data Repository (SRDR), details and a link should be included here. If none, leave blank.

34. Reference and/or URL for published protocol.

If the protocol for this review is published provide details (authors, title and journal details, preferably in Vancouver format)

Add web link to the published protocol.

Or, upload your published protocol here in pdf format. Note that the upload will be publicly accessible.

No I do not make this file publicly available until the review is complete

Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

35. Dissemination plans.

Do you intend to publish the review on completion?

Yes

Give brief details of plans for communicating review findings.?

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords help PROSPERO users find your review (keywords do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

physical activity; pedometer; accelerometer; self-monitoring; activity tracker; activity monitor; Fitbit;

counselling; support; smartphone; smartwatch; intervention; MVPA; step; sedentary; walking

37. Details of any existing review of the same topic by the same authors.

If you are registering an update of an existing review give details of the earlier versions and include a full bibliographic reference, if available.

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38. * Current review status.

Update review status when the review is completed and when it is published.New registrations must be ongoing.
Please provide anticipated publication date

Review_Ongoing

39. Any additional information.

Provide any other information relevant to the registration of this review.

40. Details of final report/publication(s) or preprints if available.

Leave empty until publication details are available OR you have a link to a preprint. List authors, title and journal details preferably in Vancouver format.

Give the link to the published review or preprint.