



Comparative Effectiveness Review Disposition of Comments Report

Title: *Physical Activity and the Health of Wheelchair Users: A Systematic Review in Multiple Sclerosis, Cerebral Palsy, and Spinal Cord Injury*

Draft report available for public comment from December 1, 2020, to January 8, 2021.

Citation: Selph SS, Skelly AC, Wasson N, Dettori JR, Brodt ED, Ensrud E, Elliot D, Dissinger KM, Hart E, Kantner S, Graham E, Junge M, Dana T, McDonagh M. Comparative Effectiveness Review No. 241. Physical Activity and the Health of Wheelchair Users: A Systematic Review of Evidence in Multiple Sclerosis, Cerebral Palsy, and Spinal Cord Injury. (Prepared by the Pacific Northwest Evidence-based Practice Center under Contract No. 290-2015-00009-I.) AHRQ Publication No. 21(22)-EHC017. Rockville, MD: Agency for Healthcare Research and Quality; October 2021. DOI: 10.23970/AHRQEPCCER241. Posted final reports are located on the Effective Health Care Program [search page](#).

Comments to Draft Report

The Effective Health Care (EHC) Program encourages the public to participate in the development of its research projects. Each draft report is posted to the EHC Program website or AHRQ website for public comment for a 3- to 4-week period. Comments can be submitted via the website, mail, or email. At the conclusion of the public comment period, authors use the commentators' comments to revise the draft report.

Comments on draft reports and the authors' responses to the comments are posted for public viewing on the website approximately 3 months after the final report is published. Comments are not edited for spelling, grammar, or other content errors. Each comment is listed with the name and affiliation of the commentator, if this information is provided. Commentators are not required to provide their names or affiliations in order to submit suggestions or comments.

This document includes the responses by the authors of the report to comments that were submitted for this draft report. The responses to comments in this disposition report are those of the authors, who are responsible for its contents, and do not necessarily represent the views of the Agency for Healthcare Research and Quality.



Summary of Public Comments and Author Response

This research review underwent peer review before the draft report was posted for public comment on the EHC website.

- The primary theme of the public comments regarded the scope of the systematic review: should have limited the review to those with significant baseline impairment, should have included behavior change initiation as an intervention, and should have included cognitive effects as an outcome.
- In response to these comments: we agreed that additional research should be conducted in individuals with greater impairment and added this to the applicability/generalizability and research needs of the report; we explained that behavior change initiation interventions were outside the scope of the review, as was the inclusion of cognitive effects as an outcome (largely due to resource limitations).

Public Comments and Author Response

Commentator & Affiliation	Section	Comment	Response
Kirsten Aquino AANS/CNS	General comments on the draft report.	The AANS/CNS Spine Section did briefly review the document but felt that it was outside the purview of Neurosurgery. 81% of the studies involved patients with multiple sclerosis or cerebral palsy - two conditions not treated by neurosurgeons.	Thank you for your review of the report.
Stephanie Silveira University of Alabama at Birmingham	Comments on the Evidence Summary section of the draft report.	I think the evidence summary is great, especially the inclusion of Table A.	Thank you.
Stephanie Silveira University of Alabama at Birmingham	Comments on the Introduction section of the draft report.	Overall the Introduction does a great job introducing the topic and providing background, however there are statistics regarding the projected incidence of wheelchair use in persons with MS (https://pubmed.ncbi.nlm.nih.gov/16415308/).	Thank you. The referenced study provides time to progress to specific levels on the Disability Status Scale rather than actual wheelchair use.
Stephanie Silveira University of Alabama at Birmingham	Comments on the Methods section of the draft report.	Overall the methods section is easy to read and follow. Further, there should be subquestions/analyses focused on the type of wheelchair. I imagine there is not a lot of evidence or reporting of the specific mobility device used by participants, however this is a large factor that impacts overall energy expenditure and likely health outcomes of interest.	We agree that energy expenditure is greatly affected by wheelchair and type of wheelchair use. However, very few studies reported that wheelchair users were included in the study, so we were unable to do any sub analyses.
Stephanie Silveira University of Alabama at Birmingham	Comments on the Results section of the draft report.	In Table A cycling is collapsed into one category, however the results outline differences by upper body and lower body cycling that are warranted.	We agree that there are differences between upper body and lower body cycling. We included the type of cycling in the in-text tables for each study, along with each study's results.
Stephanie Silveira University of Alabama at Birmingham	Comments on the Discussion section of the draft report.	I wonder why cognitive outcomes and neuroimaging was not included-- the authors may consider addressing as an area for future research. I liked the discussion of others relevant reviews and meta-analyses. Further discussion is warranted regarding the lack of ability to blind participants when using a usual care or waitlist control and subsequent impact on risk bias that is likely not appropriate.	The inclusion of cognitive outcomes and neuroimaging was outside the scope of this review. We added lack of ability to blind participants as a limitation.

Source: <https://effectivehealthcare.ahrq.gov/products/physical-activity-wheelchair/research>

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Stephanie Silveira University of Alabama at Birmingham	Comments on the Conclusion section of the draft report.	I think the term physical activity is quite misleading as the focus of this report as the inclusion criteria really focus on supervised exercise training.	We defined physical activity as a minimum of 10 supervised exercise sessions.
Stephanie Silveira University of Alabama at Birmingham	General comments on the draft report.	The definition of physical activity for the purposes of this study really needs to be refined. This report is focused on supervised exercise training and excludes all leisure-time and lifestyle physical activity interventions. I believe this a major limitation given supervised exercise training is the least likely approach from population-level physical activity promotion. Supervised exercise training has merit for some of the proposed research for understanding dose of exercise and stimuli, however behavioral interventions are critically needed that support physical activity that can be disseminated on a much larger scale. Specifically among persons with MS, there is no evidence that any of the exercise training was targeting people who use wheelchairs for mobility. Further evidence and focus is needed in persons EDSS [and] gt;6. Another major concern is the lack of emphasis for further research on behavior change initiation, implementation, and maintenance. The authors address the need for longitudinal outcomes, however there will likely be no long-term outcomes without the inclusion of theory-based behavioral techniques that promote systematic behavior change.	We defined physical activity as a minimum of 10 supervised exercise sessions. We report wheelchair use whenever the studies reported wheelchair use. However, most studies did not report the proportion of the study population that used a wheelchair, the type of wheelchair use, or the frequency of wheelchair use. We agree that more research needs to be conducted in participants with EDSS scores 6 and higher (greater disability). We added this to the section on applicability/ generalizability and to the research needs sections of the report. We agree that behavior change techniques would likely help all individuals live healthier lives with improved diet and exercise. We added this to the applicability/generalizability section: "This report focused on supervised exercise training and excluded all leisure-time and lifestyle physical activity interventions which may have greater and more sustained short as well as long term health effects." This is also mentioned in the section on Limitations of the Systematic Review Process.
Stephanie Silveira University of Alabama at Birmingham	Does this report describe both the problem and the evidence in a way that you could understand?	The authors sought to review the current evidence for physical activity as a preventative strategy for negative health outcomes among wheelchair users with MS, CP, and SCI. They reported limited evidence, especially for CVD, mortality, and other health outcomes, however there was evidence for improvements in walking, balance, and psychosocial measures such as QOL.	Thank you, we agree and believe larger, well-conducted RCTs are needed in patients with MS, CP, and SCI to address evidence gaps and to confirm current findings.

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Stephanie Silveira University of Alabama at Birmingham	Did you find this report unnecessarily difficult to read?	The report was okay to read as a researcher, however I imagine for individuals in the general population it would be much more challenging to navigate and digest.	Thank you, we understand and hope that the evidence summary and upcoming journal publication will be easy to navigate and easily digestible.
Stephanie Silveira University of Alabama at Birmingham	Could you find and understand the results and conclusions?	Yes, however I note several concerns above including the definition of PA, inclusion of studies that focused on individuals without evidence of significant walking impairment or wheelchair use, and no clear emphasis on disability severity or mobility device type.	We defined physical activity as a minimum of 10 supervised exercise sessions. We report wheelchair use whenever the studies reported wheelchair use. However, most studies did not report the proportion of the study population that used a wheelchair, the type of wheelchair use, or the frequency of wheelchair use. We agree that more research needs to be conducted in participants with EDSS scores 6 and higher (greater disability). We added this to the section on applicability/ generalizability and to the research needs sections of the report. We agree that behavior change techniques would likely help all individuals live healthier lives with improved diet and exercise. We added this to the applicability/generalizability section: "This report focused on supervised exercise training and excluded all leisure-time and lifestyle physical activity interventions which may have greater and more sustained short as well as long term health effects." This is also mentioned in the section on Limitations of the Systematic Review Process.
Kirsten Aquino AANS/CNS	General comments on the draft report.	This document was briefly reviewed by the Spine Section of the AANS/CNS but found to be outside the purview of Neurosurgery.	Thank you for your review of the report.

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Audrey Hicks McMaster University	Comments on the Evidence Summary section of the draft report.	This is a nice summary, although I [and] #039;m not sure it is necessary to separate all the effects of aerobic interventions into the specific type of intervention (aquatics, cycling, gait training, etc.). I would think it more relevant to focus on the intensity of the training (using either HR (% of max) or RPE, the mode should not be that important.	Most studies that met inclusion criteria did not report HR or RPE making it difficult to analyze results based perceived on effort or energy expenditure.
Audrey Hicks McMaster University	Comments on the Methods section of the draft report.	Very clear.	Thank you.
Audrey Hicks McMaster University	Comments on the Results section of the draft report.	Results were a bit cumbersome to read. Not enough detail provided on intensity of exercise interventions. I would prefer to see that, rather than all the different types of aerobic, balance, cycling etc. exercises.	Most studies that met inclusion criteria did not report HR or RPE making it difficult to analyze results based perceived on effort or energy expenditure.
Audrey Hicks McMaster University	Comments on the References section of the draft report.	Alphabetical referencing would be easier to navigate	Thank you for your comment. The Appendix includes an alphabetical list of the included and excluded studies. The Systematic Review citations and reference list is prepared in order of publication referred to based on AHRQ report publication standards.

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Audrey Hicks	General comments on the draft report.	I am not sure I agree with the key recommendation that larger, well-conducted RCTs are needed in these populations. There is a reason the studies are small (smaller populations to recruit from) and often multi-centred trials are plagued by lack of homogeneity in things like training equipment. I would prefer to have the report point towards things that can be accomplished in the future, beyond simply conducting larger scale [and] quot;well-conducted [and] quot; RCTs. Eg. More of an emphasis on long-term follow-up after training, and how we can measure or quantify positive lifestyle changes that lead to improved health outcomes after participation in an exercise study. There is a study missing in the references that I believe falls within the criteria. I have uploaded it.	We understand the difficulty in enrolling large sample sizes in the included populations. The use of multi-center trials would be helpful provided the same methods are used at each study site. The EPC's updated library search included the publication "Benefits of Adhering to the Canadian Physical Activity Guidelines for Adults with Multiple Sclerosis Beyond Aerobic Fitness and Strength" by Karissa L. Canning, PhD; Audrey L. Hicks, PhD. After dual review by investigators this study did not meet the inclusion criteria for interventions as it is not clear that 10 exercises sessions were observed, especially since the study analyzed the results by adherence which suggests that not all sessions (if any) were observed.
Audrey Hicks	Does this report describe both the problem and the evidence in a way that you could understand?	Yes.	Thank you.
Audrey Hicks	Did you find this report unnecessarily difficult to read?	I think there could be a clearer presentation of the data.	Thank you, we understand and hope that the evidence summary and upcoming journal publication will be easy to navigate and easily digestible.
Audrey Hicks	Could you find and understand the results and conclusions?	Results are difficult to navigate, conclusions easy to read.	Noted.

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