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Physical Activity Counselling: A Rapid Review

Health Quality Ontario

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Evidence Development and Standards Branch at Health Quality Ontario

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Conflict of Interest Statement

All authors in the Evidence Development and Standards branch at Health Quality Ontario are impartial. There are no competing interests or conflicts of interest to declare.

Rapid Review Methodology

Rapid reviews are completed in 2–4-week time frames. Clinical questions are developed by the Evidence Development and Standards branch at Health Quality Ontario, in consultation with experts, end users, and/or applicants in the topic area. A systematic literature search is then conducted to identify relevant systematic reviews, health technology assessments, and meta-analyses. The methods prioritize systematic reviews, which, if found, are rated by AMSTAR to determine the methodological quality of the review. If the systematic review has evaluated the included primary studies using the GRADE Working Group criteria (http://www.gradeworkinggroup.org/index.htm), the results are reported and the rapid review process is complete. If the systematic review has not evaluated the primary studies using GRADE, the primary studies in the systematic review are retrieved and the GRADE criteria are applied to 2 outcomes. If no systematic review is found, then RCTs or observational studies are included, and their risk of bias is assessed. All rapid reviews are developed and finalized in consultation with experts.

About Health Quality Ontario

Health Quality Ontario is an arms-length agency of the Ontario government. It is a partner and leader in transforming Ontario's health care system so that it can deliver a better experience of care, better outcomes for Ontarians, and better value for money.

Health Quality Ontario strives to promote health care that is supported by the best available scientific evidence. The Evidence Development and Standards branch works with expert advisory panels, clinical experts, scientific collaborators, and field evaluation partners to conduct evidence-based reviews that evaluate the effectiveness and cost-effectiveness of health interventions in Ontario.

Based on the evidence provided by Evidence Development and Standards and its partners, the Ontario Health Technology Advisory Committee—a standing advisory subcommittee of the Health Quality Ontario Board—makes recommendations about the uptake, diffusion, distribution, or removal of health interventions to Ontario's Ministry of Health and Long-Term Care, clinicians, health system leaders, and policy-makers.

Health Quality Ontario's research is published as part of the *Ontario Health Technology Assessment Series,* which is indexed in MEDLINE/PubMed, Excerpta Medica/Embase, and the Centre for Reviews and Dissemination database. Corresponding Ontario Health Technology Advisory Committee recommendations and other associated reports are also published on the Health Quality Ontario website. Visit http://www.hqontario.ca for more information.

About Health Quality Ontario Publications

To conduct its rapid reviews, Evidence Development and Standards and its research partners review the available scientific literature, making every effort to consider all relevant national and international research; collaborate with partners across relevant government branches; consult with expert advisory panels, clinical and other external experts, and developers of health technologies; and solicit any necessary supplemental information.

In addition, Evidence Development and Standards collects and analyzes information about how a health intervention fits within current practice and existing treatment alternatives. Details about the diffusion of the intervention into current health care practices in Ontario add an important dimension to the review. Information concerning the health benefits, economic and human resources, and ethical, regulatory, social, and legal issues relating to the intervention may be included to assist in making timely and relevant decisions to optimize patient outcomes.

Disclaimer

This rapid review is the work of the Evidence Development and Standards branch at Health Quality Ontario, and is developed from analysis, interpretation, and comparison of published scientific research. It also incorporates, when available, Ontario data and information provided by experts. As this is a rapid review, it may not reflect all the available scientific research and is not intended as an exhaustive analysis. Health Quality Ontario assumes no responsibility for omissions or incomplete analysis resulting from its rapid reviews. In addition, it is possible that other relevant scientific findings may have been reported since completion of the review. This report is current as of the date of the literature search specified in the Research Methods section. Health Quality Ontario makes no representation that the literature search captured every publication that was or could be applicable to the subject matter of the report. This rapid review may be superseded by an updated publication on the same topic. Please check the Health Quality Ontario website for a list of all publications: http://www.hqontario.ca/evidence/publications-and-ohtac-recommendations.

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List of Abbreviations

RCT	Randomized controlled trial
SCAMOB	Screening and Counseling for Physical Activity and Mobility

Background

As legislated in Ontario's *Excellent Care for All Act*, Health Quality Ontario's mandate includes the provision of objective, evidence-informed advice about health care funding mechanisms, incentives, and opportunities to improve quality and efficiency in the health care system. As part of its Quality-Based Procedures (QBP) initiative, Health Quality Ontario works with multidisciplinary expert panels (composed of leading clinicians, scientists, and administrators) to develop evidence-based practice recommendations and define episodes of care for selected disease areas or procedures. Health Quality Ontario's recommendations are intended to inform the Ministry of Health and Long-Term Care's Health System Funding Strategy.

For more information on Health Quality Ontario's Quality-Based Procedures initiative, visit www.hqontario.ca.

Objective of Analysis

The objective of this analysis is to review the literature on the effectiveness of physical activity counselling in a heart failure or elderly population living in the community. The outcomes of interest are exercise adherence and physical function.

Clinical Need and Target Population

Physical activity or exercise has been demonstrated to be very beneficial to patients with heart failure and in an elderly population in general. The Canadian Society of Exercise Physiology guidelines on physical activity state that adults over 65 years should accumulate 150 minutes of moderate to vigorous physical activity per week, with individual events lasting at least 10 minutes. They also recommend 2 days per week of muscle and bone strengthening exercises. (1) Physical activity improves physical functioning, exercise capacity, mobility, and health-related quality of life (2) and, over the long term, it reduces hospital readmissions and mortality. (2) There is evidence to suggest that advice regarding physical activity provided by health care providers is inconsistent. (3)

Several strategies have been proposed to support physical activity in older adults, including those with heart failure. Among them are developing organized exercise training programs, offering a variety of exercise options (swimming, tai chi, aerobic classes, etc.), home-based exercise programs, telephone support programs, etc.

This review focuses specifically on the concept of physical activity counselling from a health care provider. There are studies indicating that physicians can increase the likelihood of their patients becoming more physically active by speaking with them about exercise and their readiness to exercise. (4)

Rapid Review

Research Question

What is the effectiveness of exercise counselling in a heart failure population or an elderly population living in the community on exercise adherence and physical function?

Research Methods

Literature Search

Search Strategy

A literature search was performed on January 24, 2014, using Ovid MEDLINE, Ovid MEDLINE In-Process and Other Non-Indexed Citations, EBSCO Cumulative Index to Nursing & Allied Health Literature (CINAHL), and EBM Reviews, for studies published from January 1, 2008, to January 24, 2014. (Appendix 1 provides details of the search strategy.) Abstracts were reviewed by a single reviewer and, for those studies meeting the eligibility criteria, full-text articles were obtained. Reference lists were also examined for any additional relevant studies not identified through the search. In addition, members of the Community Congestive Heart Failure Expert Panel also provided relevant citations.

Inclusion Criteria

- English-language full-text publications
- published between January 1, 2008, and January 24, 2014
- randomized controlled trials (RCTs), systematic reviews, and meta-analyses
- intervention included counselling with a health care provider regarding physical activity compared to no counselling
- any type and location of physical activity was included
- population included patients with either heart failure, stroke, COPD, post-discharge from hospital, frail elderly, and patients with multiple chronic conditions

Exclusion Criteria

- studies of exercise counselling on healthy adults or children
- studies on non-exercise related counselling (diet, medication adherence, etc.)

Outcomes of Interest

- physical function (activities of daily living, instrumental activities of daily living)
- exercise adherence
- health-related quality of life

Expert Panel

In December 2013, an Expert Advisory Panel on Post-Acute, Community-Based Care for CHF Patients was struck. Members of the community-based panels included family physicians, physician specialists, community health care administrators, and allied health professionals.

The role of the Expert Advisory Panel was to provide advice on primary CHF patient groupings, review the evidence, guidance, and publications related to defined CHF patient populations, identify and prioritize interventions and areas of community-based care, and to advise on the development of a care pathway model. The role of Panel members was to provide advice on the scope of the project, the methods used, and the findings. However, the statements, conclusions, and views expressed in this report do not necessarily represent the views of the expert panel members.

Quality of Evidence

The methodology for a rapid review of primary studies assesses the quality of the evidence through a risk of bias assessment of the individual studies in the review, including allocation concealment, blinding, accounting of patients and outcome events, selective reporting bias, and other limitations. (5) A full quality of evidence assessment is not typically performed due to the time limitations associated with rapid reviews of primary studies.

Results of Rapid Review

The database search yielded 144 citations published between January 1, 2008, and January 24, 2014, (with duplicates removed). Articles were excluded based on information in the title and abstract. The full texts of potentially relevant articles were obtained for further assessment. In addition, members of the expert panel also provided citations to be considered. Five studies (all RCTs) met the inclusion criteria.

For each included study, the study design was identified and is summarized below in Table 1, a modified version of a hierarchy of study design by Goodman, 1996. (6)

Table 1: Body of Evidence Examined According to Study Design

Study Design	Number of Eligible Studies
RCTs	
Systematic review of RCTs	
Large RCT	5
Small RCT	
Observational Studies	
Systematic review of non-RCTs with contemporaneous controls	
Non-RCT with non-contemporaneous controls	
Systematic review of non-RCTs with historical controls	
Non-RCT with historical controls	
Database, registry, or cross-sectional study	
Case series	
Retrospective review, modelling	
Studies presented at an international conference	
Expert opinion	
Total	**5**

There was a systematic review identified by Tierney et al (7) that asked, "What strategies are effective for exercise adherence in heart failure?" Although similar to the question posed by this rapid review, it includes strategies for adherence that do not involve counselling from health care providers. The RCT included studies of internet interventions and remote monitoring. It also includes the randomized controlled trial by Brodie et al (8), which was also identified for inclusion in this review.

The Screening and Counseling for Physical Activity and Mobility (SCAMOB) study (9;10) was the largest and most recent study with the longest follow-up period identified. It was a randomized controlled trial that included a 2-year intervention and then a 1.5 year follow-up. To be eligible for inclusion into the SCAMOB study patients had to be able to walk 500 metres independently, have a Mini-Mental State Examination (MMSE) score of >21, and be moderately physically active or sedentary (no more than 4 hours of walking/week). All patients in the intervention group received a 50-minute, individualized motivational physical activity counselling session with a physiotherapist at the beginning of the study. The aim of the sessions was to help the participants recognize the difference in their current level of physical activity compared to their desired level of activity, and help the participants to use problem-solving techniques to develop a plan to increase physical activity. The same physiotherapist followed up with the participants 4 to 5 times over a 2-year period. The control group did not receive the counselling sessions, but continued to receive usual care. Both groups had equal access to the same public exercise facilities.

The results of the SCAMOB study (9;10) found that the participants in the intervention group maintained their mobility significantly better than the participants in the control group at the end of the 2-year study and at the 1.5-year follow-up in the longer "advanced" mobility assessment (2 km walked). They did not find a significant difference between the intervention and control groups for the "basic" mobility assessment (0.5 km walked). Figure 1 shows the trend of the change in mobility over time. In addition to the primary outcome of mobility limitation, the SCAMOB study also reported that participants in the intervention group were significantly more likely to remain at least moderately active or more compared to the control group (83% vs. 72%, odds ratio, 2.0; 95% CI, 1.3-3.0).

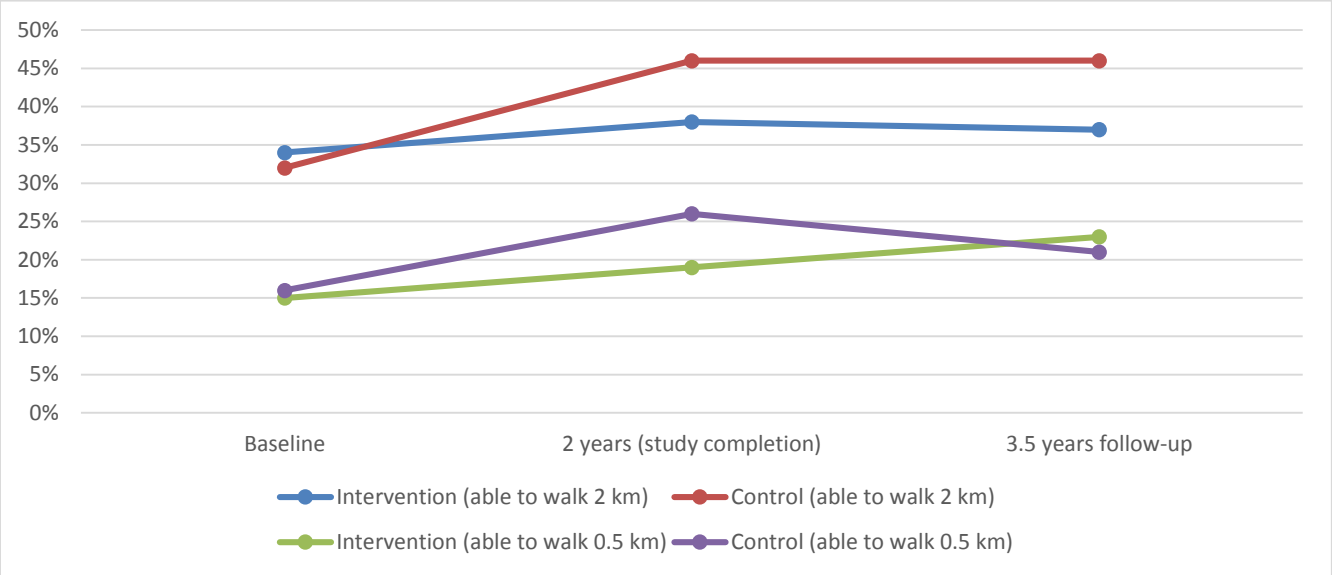

Figure 1. Percentage of participants in SCAMOB study (9;10) with mobility difficulties in the intervention and control groups

The other 4 RCTs identified are summarized with SCAMOB study in Table 2. Two of these studies focussed on a particular disease (stroke (11)], heart failure (8)), while the other 2 focussed on older populations. (12;13) The risk of bias assessment for the 5 RCTs that met the inclusion criteria varied. The studies with the least risk of bias were the SCAMOB study (9;10) and the study by Boysen et al. (11) The details of the risk of bias assessment are provided in Appendix 2.

Limitations of the Rapid Review

The type, frequency, delivery, and duration of counselling varied across the studies identified in the review. Three of the studies included the older adult population, while the other 2 studies included specific disease populations (heart failure and stroke). The largest and most recent study to date, the SCAMOB study, was not limited to the post-discharge population, but rather focussed on older adults with, on average, 3 chronic conditions. No studies were identified specifically on a COPD population that met the inclusion criteria.

Table 2. Summary of Studies

Study	Population	N	Intervention	Control	Outcomes	Results	Conclusion
Manty et al, 2009 (9); Rasinaho et al, 2012 (10) (SCAMOB)	Older adults with a mean of 3 chronic diseases (75-81 years, 77.6 SD ±1.9)	632 (75% women)	In-person counselling session, followed by 4-5 telephone sessions over 2 years	No counselling	Mobility limitation	Basic mobility (0.5 km) OR 87; 95% CI, 0.69-1.09 Advanced mobility (2 km) OR 0.84; 95% CI, 0.70-0.99	There was a significant difference between the intervention and control groups in terms of maintaining advanced mobility, but no difference was observed in basic mobility.
Boysen et al, 2009 (11)	Stroke patients	314	Instructions on an exercise program before discharge, then during 5 follow-up visits over 24 months	Same frequency of visits, but without instructions on exercise program	PASE	PASE: 69.1 intervention 64.0 control (mean difference 5.0; 95% CI -5.8 to 15.9)	There was no difference in the PASE assessment between the intervention and control groups.
Morey et al, 2009 (13)	Older men (≥70 years)	398	Multicomponent physical activity counselling, in person, telephone, and mailed reminders	No counselling	Gait speed, self-reported physical activity, function, disability	Rapid gait speed (P = 0.04) Minutes of moderate/vigorous physical activity per week (P < 0.001)	Rapid gait speed and moderate/vigorous physical activity improved in the intervention group compared to the control group. Changes in functional outcomes were not observed.
Brodie et al, 2008 (8)	Heart failure patients	60	Motivational interviewing	Standard care (advice to exercise from heart failure nurse)	Health-related quality of life, readiness-to-change assessment	SF-36 P < 0.05 on 3 dimensions Minnesota LHFQ P NS (all groups improved) Motivation Readiness scale trend for all groups to be more motivated	There were some slight improvements in quality of life in the intervention group compared to the control group, but overall both groups improved.
Dubbert et al, 2008 (12)	Older men (60-85 years)	224	Exercise counselling for home-based walking	Brochure on exercise	Duration of walking	At 5 months: Intervention: 64.5 min/week Control: 50.5 minutes/week At 10 months: Intervention: 60.6 min/week Control: 45.7 minutes/week P < 0.001	There was a significant difference in the duration of exercise per week in the intervention group compared to the control group at both 5 and 10 months.

Abbreviations: Minnesota LHFQ, Minnesota Living with Heart Failure; N, number; OR, odds ratio; PASE, Physical Activity Scale for the Elderly; SCAMOB, Screening and Counseling for Physical Activity and Mobility; SF-36, short form-36;

Conclusions

The largest and longest study on physical activity counselling identified by this review found that a 50-minute individualized physical activity counselling session with a physiotherapist, followed up with 4-5 telephone sessions over the next 2 years, resulted in increased maintenance of mobility in a population of older adults.

Acknowledgements

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Appendices

Appendix 1: Literature Search Strategy

Search date: January 24, 2014
Databases searched: OVID MEDLINE, MEDLINE In-Process and Other Non-Indexed Citations, All EBM Databases (see below), CINAHL

Database: EBM Reviews - Cochrane Database of Systematic Reviews <2005 to December 2013>, EBM Reviews - ACP Journal Club <1991 to December 2013>, EBM Reviews - Database of Abstracts of Reviews of Effects <4th Quarter 2013>, EBM Reviews - Cochrane Central Register of Controlled Trials <December 2013>, EBM Reviews - Cochrane Methodology Register <3rd Quarter 2012>, EBM Reviews - Health Technology Assessment <4th Quarter 2013>, EBM Reviews - NHS Economic Evaluation Database <4th Quarter 2013>, Ovid MEDLINE(R) <1946 to January Week 2 2014>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <January 15, 2014>.

Search Strategy:

#	Searches	Results
1	exp Patient Discharge/	19088
2	exp Aftercare/ or exp Convalescence/	10015
3	"Continuity of Patient Care"/ or exp "Recovery of Function"/	45893
4	((patient* adj2 discharge*) or after?care or post medical discharge* or post?discharge* or convalescen*).ti,ab.	36397
5	exp Stroke/	84308
6	exp brain ischemia/ or exp intracranial hemorrhages/	128360
7	(stroke or poststroke or tia or transient ischemic attack or ((cerebral vascular or cerebrovascular) adj (accident* or infarct*)) or CVA or cerebrovascular apoplexy or brain infarct* or (brain adj2 isch?emia) or (cerebral adj2 isch?emia) or (intracranial adj2 h?emorrhag*) or (brain adj2 h?emorrhag*)).ti,ab.	190539
8	exp Heart Failure/	88591
9	(((cardia? or heart) adj (decompensation or failure or incompetence or insufficiency)) or cardiac stand still or ((coronary or myocardial) adj (failure or insufficiency))).ti,ab.	128470
10	exp Pulmonary Disease, Chronic Obstructive/	36229
11	exp Emphysema/	10637
12	(copd or coad or chronic airflow obstruction* or (chronic adj2 bronchitis) or emphysema).ti,ab.	55678
13	(chronic obstructive adj2 (lung* or pulmonary or airway* or airflow* or respiratory or bronchopulmonary) adj (disease* or disorder*)).ti,ab.	34224
14	exp Pneumonia/	73947
15	(pneumoni* or peripneumoni* or pleuropneumoni* or lobitis or ((pulmon* or lung*) adj inflammation*)).ti,ab.	136047
16	or/1-15	743343
17	exp Exercise/	125431
18	exp Exercise Therapy/	33932
19	exp Motor Activity/	200091
20	exp Physical Fitness/	22994
21	exp Exercise Tolerance/	9211
22	or/17-21	243077
23	exp Counseling/	34753
24	exp Health Promotion/	54755
25	or/23-24	87891
26	((exercis* or (physical adj2 (condition* or activit*)) or strength train* or aerobic* or fitness) adj5 (counsel* or advic* or advis* or referral* or promot*)).ti,ab.	8648
27	(22 and 25) or 26	14348
28	16 and 27	566
29	(Meta Analysis or Controlled Clinical Trial).pt.	214017
30	Meta-Analysis/ or exp Technology Assessment, Biomedical/	52815
31	(meta analy* or metaanaly* or pooled analysis or (systematic* adj2 review*) or published studies or published literature or medline or embase or data synthesis or data extraction or cochrane or ((health technolog* or biomedical technolog*) adj2 assess*)).ti,ab.	190945
32	exp Randomized Controlled Trial/ or exp Random Allocation/ or exp Double-Blind Method/ or exp Control Groups/ or exp Placebos/	585768
33	(random* or RCT or placebo* or sham* or (control* adj2 clinical trial*)).ti,ab.	1196285
34	exp Standard of Care/ or exp Guideline/ or exp Guidelines as Topic/	134708
35	(guideline* or guidance or consensus statement* or standard or standards).ti.	112882
36	or/29-35	1787621
37	28 and 36	261

38	limit 37 to (english language and yr="2008 -Current") [Limit not valid in CDSR,ACP Journal Club,DARE,CCTR,CLCMR; records were retained]	151
39	remove duplicates from 38	109

CINAHL

#	Query	Results
S1	(MH "Patient Discharge+") or (MH "After Care") or (MH "Recovery") or (MH "Continuity of Patient Care+")	44,877
S2	((patient* N2 discharge*) or aftercare or after care or post medical discharge* or postdischarge* or post discharge* or convalescen*)	29,136
S3	(MH "Stroke+") or (MH "Cerebral Ischemia+") or (MH "Intracranial Hemorrhage+") or (MH "Stroke Patients")	48,958
S4	(stroke or poststroke or tia or transient ischemic attack or ((cerebral vascular or cerebrovascular) N1 (accident* or infarct*)) or CVA or cerebrovascular apoplexy or brain infarct* or ((brain or cerebral) N2 (ischemia or ischaemia)) or ((intracranial or brain) N2 (hemorrhag* or haemorrhag*)))	60,888
S5	(MH "Heart Failure+")	22,288
S6	((cardia* or heart) N1 (decompensation or failure or incompetence or insufficiency)) or cardiac stand still or ((coronary or myocardial) N1 (failure or insufficiency))	28,739
S7	(MH "Pulmonary Disease, Chronic Obstructive+") or (MH "Emphysema+")	11,369
S8	((chronic obstructive N2 (lung* or pulmonary or airway* or airflow* or respiratory or bronchopulmonary) N1 (disease* or disorder*)) or (copd or coad or chronic airflow obstruction* or (chronic N2 bronchitis) or emphysema))	14,436
S9	(MH "Pneumonia+")	12,353
S10	(pneumoni* or peripneumoni* or pleuropneumoni* or lobitis or ((pulmon* or lung*) N1 inflammation*))	19,254
S11	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10	172,967
S12	(MH "Exercise+")	62,277
S13	(MH "Physical Activity")	19,255
S14	(MH "Therapeutic Exercise+")	31,771
S15	(MH "Motor Activity+")	7,002
S16	(MH "Physical Fitness+")	9,762
S17	(MH "Exercise Tolerance+")	3,664
S18	S12 OR S13 OR S14 OR S15 OR S16 OR S17	103,053
S19	(MH "Counseling+")	21,512
S20	(MH "Health Promotion")	34,654
S21	S19 OR S20	55,357
S22	((exercis* or (physical N2 (condition* or activit*)) or strength train* or aerobic* or fitness) N5 (counsel* or advic* or advis* or referral* or promot*))	3,933
S23	(S18 AND S21) OR S22	8,672
S24	S11 AND S23	294
S25	(MH "Random Assignment") or (MH "Random Sample+") or (MH "Meta Analysis") or (MH "Systematic Review") or (MH "Double-Blind Studies") or (MH "Single-Blind Studies") or (MH "Triple-Blind Studies") or (MH "Placebos") or (MH "Control (Research)") or (MH "Practice Guidelines") or (MH "Randomized Controlled Trials")	187,376
S26	((health technology N2 assess*) or meta analy* or metaanaly* or pooled analysis or (systematic* N2 review*) or published studies or medline or embase or data synthesis or data extraction or cochrane or random* or sham*or rct* or (control* N2 clinical trial*) or guideline* or guidance or consensus statement* or standard or standards or placebo*)	471,342
S27	S25 OR S26	480,710
S28	S24 AND S27	121
S29	S24 AND S27 Limiters - Published Date: 20080101-20131231; English Language	69

Appendix 2: Evidence Quality Assessment

Table A1: Risk of Bias Among Randomized Controlled Trials for the Comparison of Physical Activity Counselling Versus No Counselling

Author, Year	Allocation Concealment	Blinding	Complete Accounting of Patients and Outcome Events	Selective Reporting Bias	Other Limitations
SCAMOB, 2010 (9;10)	No limitations	No limitations	No limitations	No limitations	No limitations
Boysen et al, 2009 (11)	No limitations	No limitations	No limitations	No limitations	No limitations
Morey et al, 2009 (13)	Limitations[a]	Limitations[b]	No limitations	Limitations[c]	No limitations
Brodie et al, 2008 (8)	No limitations	Limitations[b]	No limitations	Limitations[c]	No limitations
Dubbert et al, 2008 (12)	Limitations[a]	No limitations	No limitations	Limitations[c]	No limitations

[a] Not reported whether allocation concealment was part of the methodology.
[b] Not reported whether participants or researchers were blinded.
[c] No intention to treat. Thirty-two patients were lost in the follow-up period (mostly through death), and these were not accounted for in the final results.

References

(1) Canadian Society of Exercise Physiology. Canadian physical activity guidelines for older adults [Internet]. [updated 2014; cited 2014 Jan 30]. Available from: http://www.csep.ca/CMFiles/Guidelines/CSEP_PAGuidelines_older-adults_en.pdf

(2) Belardinelli R, Georgiou D, Cianci G, Purcaro A. 10-year exercise training in chronic heart failure: a randomized controlled trial. J Am Coll Cardiol. 2012;60(16):1521-8.

(3) Guimaraes GV, Carvalho VO, Torlai V, Bocchi EA. Physical activity profile in heart failure patients from a Brazilian tertiary cardiology hospital. Cardiology Journal. 2010;17(2):143-5.

(4) Marki A, Bauer GB, Angst F, Nigg CR, Gillmann G, Gehring TM. Systematic counselling by general practitioners for promoting physical activity in elderly patients: a feasibility study. Swiss Med Wkly. 2006;136(29-30):482-8.

(5) Guyatt GH, Oxman AD, Vist G, Kunz R, Brozek J, Alonso-Coello P, et al. Rating the quality of the evidence--study limitations (risk of bias). J Clin Epidemiol. 2011;64(4):407-15.

(6) Goodman C. Literature searching and evidence interpretation for assessing health care practices. SBU Report No. 119E. Stockholm,Sweden: Swedish Council on Technology Assessment in Health Care; 1996 1-81 p.

(7) Tierney S, Mamas M, Woods S, Rutter MK, Gibson M, Neyses L, et al. What strategies are effective for exercise adherence in heart failure? A systematic review of controlled studies. Heart Failure Reviews. 2012;17(1):107-15.

(8) Brodie DA, Inoue A, Shaw DG. Motivational interviewing to change quality of life for people with chronic heart failure: a randomised controlled trial. International Journal of Nursing Studies. 2008;45(4):489-500.

(9) Manty M, Heinonen A, Leinonen R, Tormakangas T, Hirvensalo M, Kallinen M, et al. Long-term effect of physical activity counseling on mobility limitation among older people: a randomized controlled study. J Gerontol A Biol Sci Med Sci. 2009;64A(1):83-9.

(10) Rasinaho M, Hirvensalo M, Tormakangas T, Leinonen R, Lintunen T, Rantanen T. Effect of physical activity counseling on physical activity of older people in Finland. Health Promot Int. 2012;27(4):463-74.

(11) Boysen G, Krarup LH, Zeng X, Oskedra A, Korv J, Andersen G, et al. ExStroke Pilot Trial of the effect of repeated instructions to improve physical activity after ischaemic stroke: a multinational randomised controlled clinical trial. BMJ. 2009;339(0):b2810.

(12) Dubbert PM, Morey MC, Kirchner KA, Meydrech EF, Grothe K. Counseling for home-based walking and strength exercise in older primary care patients. Arch Intern Med. 2008;168(9):979-86.

(13) Morey MC, Peterson MJ, Pieper CF, Sloane R, Crowley GM, Cowper PA, et al. The veterans LIFE study: a randomized trial of primary care based physical activity counseling for older men. J Am Geriatr Soc. 2009;57(7):1166-74.

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