

Supplementary Files

Supplementary Tables

Supplementary Table A: Characteristics of excluded studies (at point of full text review)

Reason for exclusion	Citation
Non RCT	Ades et al. 2000
Trial arms involved home-based CR and usual care	Senuzun et al. 2006; Sinclair et al. 2005
Both arms received home-based CR	Tygesen et al. 2001
Not home- vs. centre-based CR comparison	Austin et al. 2005 (3 publications); Belardinelli et al. 1999 (2 publications); Dracup et al. 2007; HF-ACTION 2009 (6 publications); Jolly et al. 2009; McKelvie et al. 2002; Mutwalli et al. 2012
< 6 months follow-up	Corvera-Tindel et al. 2004
Relevant outcomes not reported	Oka et al. 2000

CR = cardiac rehabilitation

RCT = randomised controlled trial

Supplementary Table B: Summary of intervention details

Study	Home-based intervention	Centre-based intervention
Arthur et al. 2002		
Exercise	Total duration: 6 months, 5 sessions/week, 40 min/session. Intensity: 60-70% VO2 max. Modality: walking. Also attended one hour's exercise consultation with exercise specialist at baseline and after 3 months training, and completed exercise log that was reviewed every 2 months. Also telephone support call every 2 weeks.	Total duration: 6 months, 3 sessions/week, 40 min/session. Intensity: 60-70% VO2 max. Modality: cycle ergometer, treadmill, track walking and stair climbing. Supervised by exercise specialist and completed exercise log that was reviewed monthly.
Other	Dietary advice and psychological support	Dietary advice and psychological support
Bell 1998 (Heart Manual)		
Exercise	Overall duration: 6 weeks. Frequency, duration and intensity not reported.	Overall duration and frequency: 12 weeks of 1 session/week or 4 weeks of 2 sessions/week, ≥20 min/session. Intensity: 3-4 on Borg rating of perceived exertion (RPE) scale
Other	Four phone calls by facilitator, health education and stress management.	Education sessions on causes of CHD, medication, risk factor modification, stress management and exercise.
Carlson et al. 2000		
Exercise	Overall duration: 25 weeks, 2-5 sessions/week, 30-40 min/session. Intensity: 60-85% of aerobic capacity. Modality: aerobic exercise. First 4 weeks – 3 hospital-based exercise sessions/week with ECG monitoring and then progressive reduction in frequency of centre-based sessions.	Overall duration: 25 weeks, 2-3 sessions/week, 30-45 min/session. Intensity: 60-85% of aerobic capacity. Modality: aerobic exercise.
Other	Weekly educational and counselling meetings including sessions on exercise, diet, risk factors, drugs and overcoming barriers to behaviour change. Based on Bandura's self-efficacy theory.	Three sessions of education and counselling including sessions on exercise, diet, risk factors and drugs.
Cowie et al. 2012		
Exercise	One-hour aerobic-based exercise session (DVD and booklet), including 15-min warm-up and 15-min cool-down. Aerobic overload: 2 x 15-min circuits (10 simple, functional aerobic exercises e.g. knee lifts, side steps); interspersed with low-paced 'active recovery' (toe tapping or slow walking, 90 secs for each exercise). Gradual increase of the proportion of time spent on aerobic overload in relation to active recovery provided individually tailored interval training. Physiotherapist telephoned every two weeks to modify exercise prescription where appropriate.	One-hour aerobic-based exercise session (physiotherapist-led), including 15-min warm-up and 15-min cool-down. Aerobic overload: 2 x 15-min circuits (10 simple, functional aerobic exercises e.g. knee lifts, side steps); interspersed with low-paced 'active recovery' (toe tapping or slow walking, 90 secs for each exercise). Gradual increase of the proportion of time spent on aerobic overload in relation to active recovery provided individually tailored interval training.
Other	Educated on symptoms of unstable HF. Use of heart rate monitors to guide training intensity. Encouraged to work at 12-13 on the Borg RPE. Advised to adhere to usual HF nursing care and daily routines.	Educated on symptoms of unstable HF. Use of heart rate monitors to guide training intensity. Encouraged to work at 12-13 on the Borg RPE. Advised to adhere to usual HF nursing care and daily routines.
Dalal et al. 2007 (Heart Manual)		
Exercise	Overall duration: 6 weeks. Frequency, duration and intensity not reported. Modality: walking. Home visit in first week after discharge by cardiac rehabilitation nurse followed by up to 4 telephone calls at 2, 3, 4 and 6	Overall duration: 8-10 weeks, 1-5 sessions/week. Duration and modality not reported. Supervised and group-based.

	weeks.	
Other	Stress management and education	Input from dietician, psychologist, occupational therapist and pharmacist.
Daskapan et al. 2005		
Exercise	Total duration: 12 weeks, 3 sessions/week, 45 mins/session (including warm-up, cool-down and recovery). Intensity: up to 60% peak heart rate (RPE 12-16). Modality: walking. Follow-up logs completed daily/returned biweekly. Weekly phone calls from staff monitoring adherence and progress and monthly phone calls from patients for control purposes.	Total duration: 12 weeks, 3 sessions/week, 45 mins/session (including warm-up, cool-down and recovery). Intensity: 60% peak heart rate. Modality: walking on a treadmill (supervised)
Other	Not reported	Not reported
Gordon et al. 2002		
Exercise	<p>Group 1 (supervised home-based CR): Total duration 12 weeks, frequency and intensity individually prescribed (30-60 mins aerobic exercise, 60-85% peak HR), gradually updated. Two office visits and four phone calls.</p> <p>Group 2 (community home-based CR): Total duration 12 weeks, frequency and intensity individually prescribed (30-60 mins aerobic exercise, 60-85% peak HR), gradually updated. 12 on site visits or telephone calls (patient choice)</p>	Total duration: 12 weeks, 3 sessions/week (total of 36 sessions). Intensity: individually prescribed (30-60 mins aerobic exercise at 60-85% peak HR). Continuous ECG telemetry during exercise.
Other	Group 1 and group 2: written materials, audiotapes, nutrition, weight and stress management, smoking cessation programme, individual management of risk factors for CAD	Written materials, audiotapes, education on risk factors for coronary artery disease, and lifestyle modification
Jolly et al. 2007 (Heart Manual and centre-based cardiac rehabilitation (control))		
Exercise	Overall duration: 6 weeks of Heart Manual programme and 12 weeks of nurse support. Frequency: up to daily. Duration and intensity not reported. Modality: walking.	Total duration: 6-12 weeks, 1-2 sessions/week, 25-30 min/session. Intensity: 65-75% max HR. Modality: circuit training, cycle ergometer.
Other	Education on risk factors, lifestyle changes, medications and stress management (relaxation tapes)	Education and stress management (relaxation)
Karapolat et al. 2009		
Exercise	Total of 8 weeks, 3 sessions/week, 45-60 min/session. Sessions supervised by a physician at home. Specific programme designed for each patient based on individual muscle strength, joint flexibility and aerobic endurance. Included flexibility exercises (stretching of cervical and lumbar spine and upper and lower extremities), aerobic exercises (30 min treadmill, 60-70% HR reserve, 13-15 on Borg scale, including 5 min warm-up and 5 min cool-down) and breathing exercises. Training HR measured by monitor (Polar Edge, Polar Electro Oy, Finland).	Total of 8 weeks, 3 sessions/week, 45-60 min/session. Sessions supervised by a physician. Specific programme designed for each patient based on individual muscle strength, joint flexibility and aerobic endurance. Aerobic exercises performed for 30 mins on treadmill with 5 min warm-up and 5 min cool-down, 60-70% HR reserve, 13-15 on Borg scale. Training HR measured by monitor (Polar Edge, Polar Electro Oy, Finland).
Other	None	None

Kassaian et al. 2000		
Exercise	Total duration: 12 weeks. Frequency and duration not reported. Intensity 'based on exercise test results'.	Total duration: 12 weeks, 3 sessions/week, 20-30 min/session plus 10 min warm-up and 10 min cool-down. Intensity: 60-85% (not reported if relative to HR max. or VO2 max.)
Other	Patients taught to count their pulse rate	Not reported
Marchionni et al. 2003		
Exercise	Overall duration: 8 weeks, 3 days/week, 1 hour/session. Intensity: 70-85% peak HR. Modality: cycle ergometer. Physical therapist home visits every other week.	Overall duration: 12 weeks, 3 days/week, duration not reported. Intensity: 70-85% peak HR. Modality: cycle ergometer. Trans-telephonic ECG monitoring during exercise.
Other	Monthly family-oriented support groups	Risk factor management counselling; support group meetings
Miller et al. 1984		
Exercise	Overall duration: 8 weeks (brief) or 23 weeks (extended). 5 sessions/week, 30 mins/session. Intensity: 70-85% HR max. Modality: cycle ergometer. Portable HR monitors and trans-telephonic ECG. Two phone calls/week by staff to verify training intensity, clinical status and medication.	Overall duration: 8 weeks (brief) or 23 weeks (extended). 5 sessions/week, 60 mins/session. Intensity: 70-85% HR max. Modality: walking/jogging. Group-based and supervised.
Other	No education or psychological intervention reported	No education or psychological intervention reported
Moholdt et al. 2012		
Exercise	Total duration: 6 months, 3 sessions/week, 38 min/session (10 min warm-up, 4x4 min intervals of high intensity exercise (HR 85-95%), 4x3 min intervals of moderate intensity (HR approx. 70%). Modality: walking, jogging, swimming or cycling (chosen by patient)	Total duration: 4 weeks, 30 exercise sessions – 4 low intensity (up to 11 on Borg scale), 16 moderate intensity (12-14 on Borg scale), and 10 high intensity (15-17 on Borg scale). Modality: outdoor walking, cross-country skiing, indoor cycling, hall games, and strength training.
Other	Diet counselling, smoking cessation programme, lectures about healthy lifestyle. After discharge from the rehabilitation centre, patients were advised to keep exercising at home, and invited back for follow-up testing after 6 months.	Diet counselling, smoking cessation programme, lectures about healthy lifestyle. After discharge from the rehabilitation centre, patients were advised to keep exercising at home, and invited back for follow-up testing after 6 months. They did not receive a training diary or concrete advice about how to exercise on discharge.
Oerkild et al. 2011		
Exercise	Total duration: 6 weeks, 6 days/week, 30 min/session. Intensity: 11-13 on Borg scale modality: self-passed brisk walking and stationary cycling. Exercise programmes individually tailored by a physiotherapist. At end of intervention at 3 months, participants were encouraged to continue to exercise for 30 mins 6 days/week at 11-13 on the Borg scale.	Total duration: 6 weeks, 2 sessions/week, 60 min/session, high intensity. At end of intervention at 3 months, participants were encouraged to continue to exercise for 30 mins 6 days/week at 11-13 on the Borg scale.
Other	Patients offered six education lectures, two dietary counselling sessions, three practical cooking and (if needed) smoking cessation counselling sessions. Cardiologist counselling on risk factors and medical adjustment at baseline, 3, 6 and 12 months. Telephone call at 4 and 5 months.	Offered dietary counselling and (if needed) smoking cessation. Cardiologist counselling on risk factors and medical adjustment at baseline, 3, 6 and 12 months. Telephone call at 4 and 5 months.
Piotrowicz et al. 2010		

Exercise	Overall duration: 8 weeks, 3 sessions/week, 20-45 min/session. Including i) 5-10 min warm-up (breathing and light exercises, calisthenics), ii) 10-30 min basic aerobic endurance training (walking) and iii) 5 min cool-down. Given heart rate recording device and mobile phone to monitor and control training.	As home-based, except supervised interval cycling exercise.
Other	Education programme for patients and partners: how to measure HR, BP and body weight; evaluate signs and symptoms; level perceived exertion and how to perform exercise training. Each patient received psychological support.	As home-based group.
Sparks et al. 1993		
Exercise	Overall duration: 12 weeks, 3 days/week, 1 hour/session. Intensity: 60-75% peak HR. Modality: cycle ergometer. Trans-telephonic ECG monitoring.	As home-based, but no trans-telephonic ECG monitoring during exercise.
Other	Education materials on diet, medications, risk and benefits of exercise	Education materials on diet, medications, risk and benefits of exercise
Wu et al. 2006		
Exercise	Total duration: 12 weeks, 3 or more sessions/week, 30-60 mins plus 10 min warm-up and 10 min cool-down/session. Intensity: 60-85% HR max. Modality: fast walking or jogging. Exercise documented in record book. Prescription of exercise individually given and updated every two weeks by rehabilitation nurse.	Total duration: 12 weeks, 3 sessions/week (total 36 sessions), 30-60 mins plus 10 min warm-up and 10 min cool-down/session. Intensity: 60-85% HR max. Modality: cycle ergometer, treadmill. Exercise supervised by cardiopulmonary physical therapist.
Other	Not reported	Not reported

Supplementary Table C: Summary of adherence at follow-up in home-based compared with centre-based rehabilitation, including method for or definition of assessment of adherence

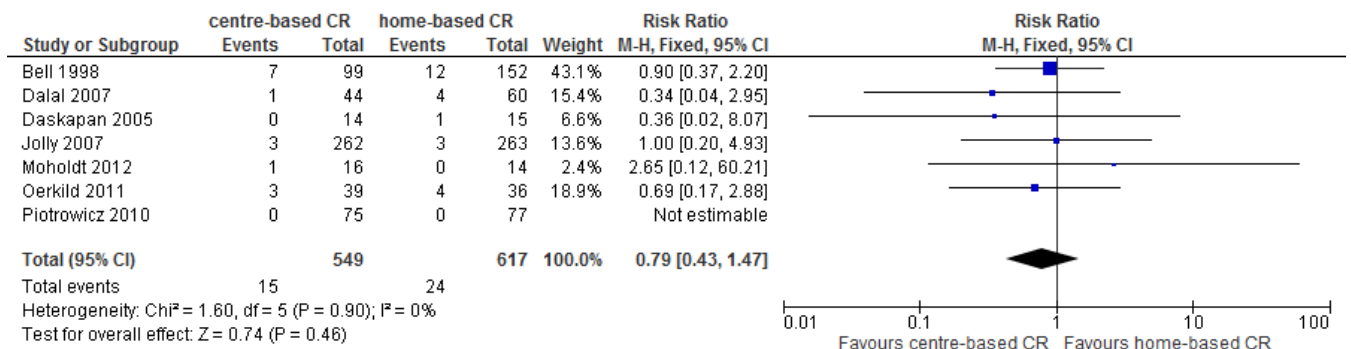
Trial	Follow-up	Method/definition of adherence assessment	Findings	Between-group difference
Author (year)				
Miller et al. (1984) / DeBusket al. (1985) / Taylor et al. (1986)	6 months	Ratio of exercise sessions completed vs. prescribed	Home: 50/70 (72%) Centre: 28/40 (71%) P-value not calculable	Home = Centre**
Sparks et al. (1993)	3 months	Percentage of sessions attended	Home: 93% Centre: 88% P-value not calculable	?
Cowie et al. (2012)	3 months	Percentage completion of 16 exercise sessions	Home: 77% Centre: 86% P = 0.32	Home = Centre
Karapolat et al. (2009)	8 weeks	Attendance at exercise sessions	Home: (32/37) 87.5% Centre: (33/37) 90% P = 0.72*	Home = Centre
Carlson et al. (2000)	6 months	Attendance at all 3 nutrition/risk factor classes Total exercise over follow up – number of sessions ≥ 30 min	Home: 27/38 (71%) Centre: 33/42 (79%) P = 0.438* Home: mean 111.8 (SD 29.1) Centre: mean 98.1 (SD 33.4) P = 0.06†	Home = Centre
Gordon et al. (2002)	3 months	Percentage of completed scheduled appointments (exercise sessions, office/on site visits, “telephone visits” in accordance with intervention protocol)	Home (MD supervised): 83% Home (community-based): 86% Centre: 81%	Home = Centre**
Arthur et al. (2002) / Smith et al. (2004)	6 months 18 months	Number of exercise session reported/week Percentage of patients seeking dietician	Home: mean 6.5 (SD 4.6) Centre: mean 3.7 (SD 2.6) P < 0.0001† Home 50% (mean 3.5,	Home > Centre ?

		consultation	SD 2.5 visits)	
			Centre: 53% (mean 3.6, SD 2.3 visits)	
		Percentage of patients seeking psychologist consultation	Home: 42% (mean 2.6, SD 2.4 visits)	Home = Centre**
			Centre: 51% (mean 2.5, SD 2.2 visits)	
		Level of physical activity – Physical Activity Scale for the Elderly	Home: mean 232.6 (SD 99.4)	Home > Centre
			Centre: mean 170.0 (SD 89.2)	
			P < 0.0001†	
Marchionni et al. (2003)	4 months	Number of exercise sessions completed	Home: 37.3 (SD 3.4)	Home > Centre
			Centre: 34.3 (SD 4.4)	
			P < 0.0001†	
Daskapan et al. (2005)	3 months	Percentage of sessions attended	Home: 97%	?
			Centre: 81%	
			P-value not calculable	
Dalal et al. (2007)	9 months	Number who participated in intervention	Home: 40/60 (67%)	Home = Centre
			Centre: 32/44 (72%)	
			P = 0.51*	
Jolly et al. (2007)	3 months	Hours of self-reported activity weighted for intensity	Home: mean 23.2 (SD 22.1)	Home = Centre
			Centre: mean 18.7 (SD 19.3)	
	6 months		P = 0.06†	Home = Centre
			Home: mean 16.4 (SD 17.0)	
			Centre: mean 18.1 (SD 25.4)	
	12 months		P = 0.4†	Home = Centre
			Home: mean 19.2 (SD 20.8)	
	24 months		Centre: mean 15.9 (SD 16.7)	Home = Centre
			P = 0.06†	
			Home: mean 18.9 (SD 18.4)	
			Centre: mean 16.6 (SD	

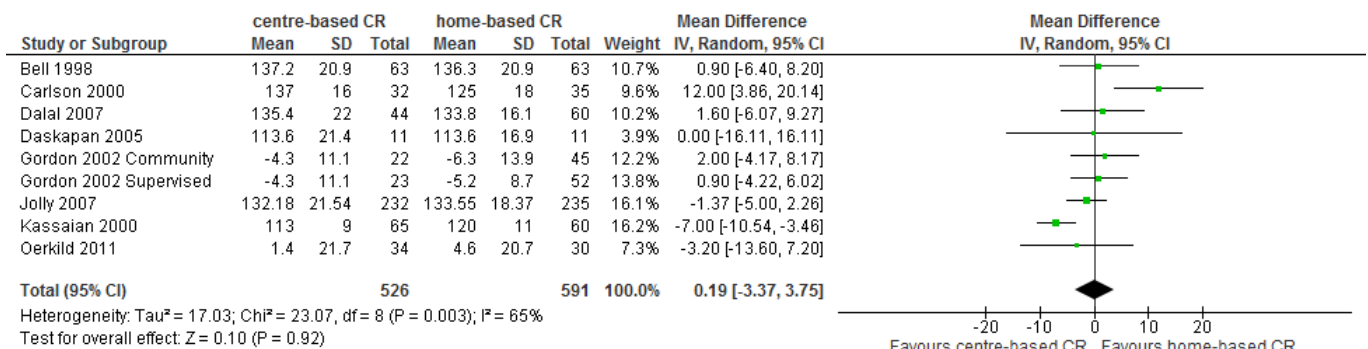
				16.4)
				P = 0.16†
Moholdt (2012)	6 months	Training diaries (only reported for home group)	Home: 7/10 patients (with complete diary data) reported ≥ 2 weekly interval sessions over 6 months follow up	?
Piotrowicz (2010)	8 weeks	Percentage of patients who carried out the prescribed exercise training (home group: daily telephone contacts with monitoring centre; centre group: attendance at supervised sessions).	Home: 77/77 (100%) Centre: 59/75 (79%) P < 0.0001†	Home > Centre

*calculated by authors of this report based on Chi² test †calculated by authors of this report based on independent t-test
Home = Centre: no statistically significant difference (P > 0.05) in health-related quality of life (HRQoL) between home- and centre-based groups at follow up
Home > Centre: statistically significant (P \leq 0.05) higher HRQoL in home- versus centre-based groups at follow up
Home < Centre: statistically significant (P \leq 0.05) lower HRQoL in home- versus centre-based groups at follow up
**Home- and centre-based groups at follow up appear to be similar but P-value not reported or calculable
?Home- and centre-based groups at follow up appear different but P-value not reported or calculable

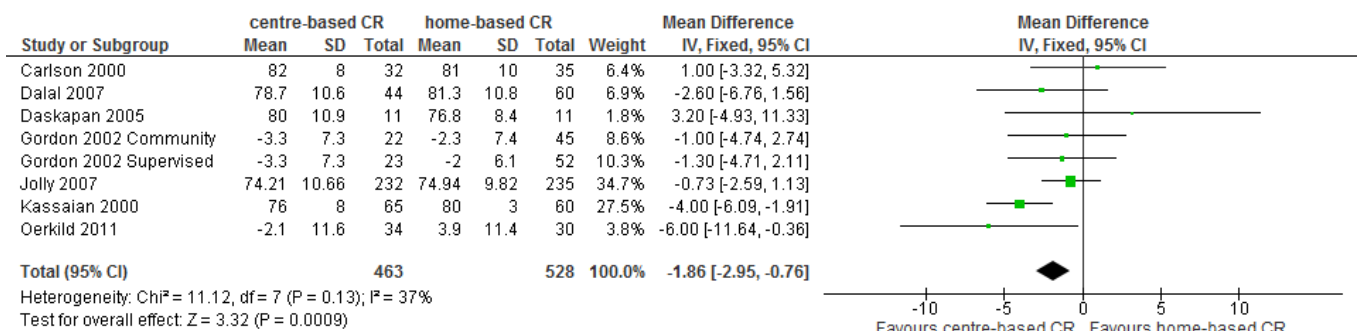
Supplementary Figures



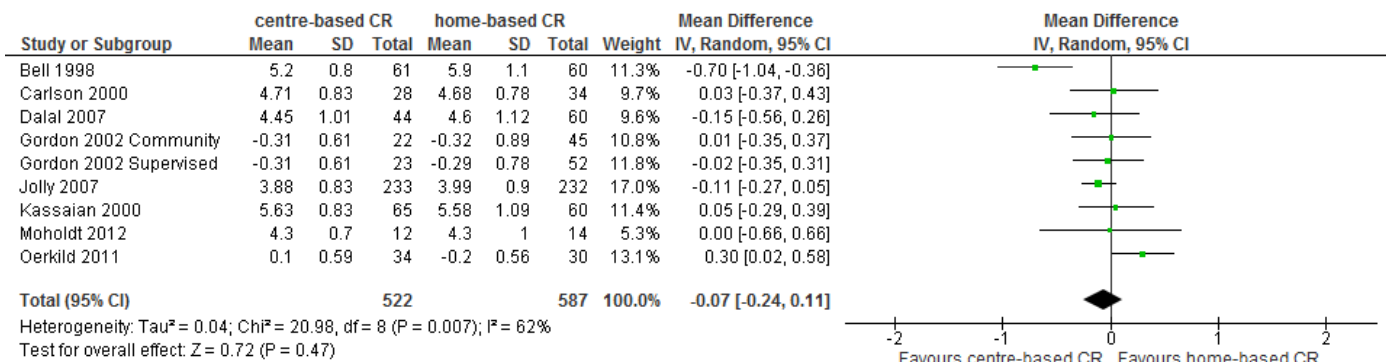
Supplementary Figure A: Mortality



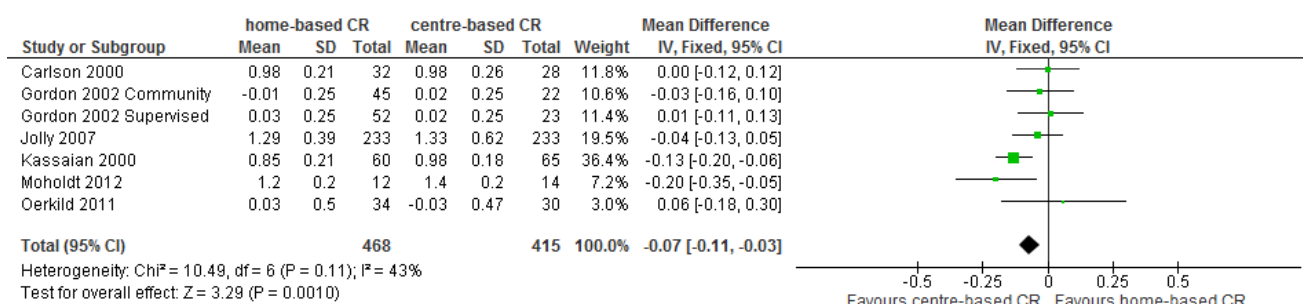
Supplementary Figure B: Blood pressure (mmHg): systolic BP 3 to 12 months



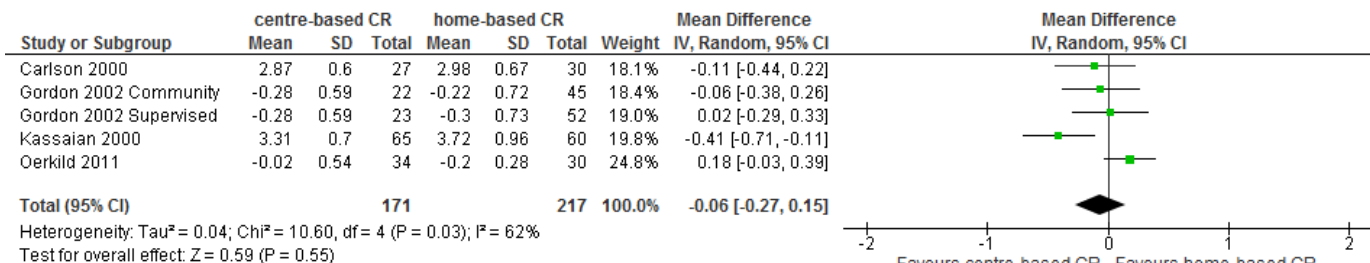
Supplementary Figure C: Blood pressure (mmHg): diastolic BP 3 to 12 months



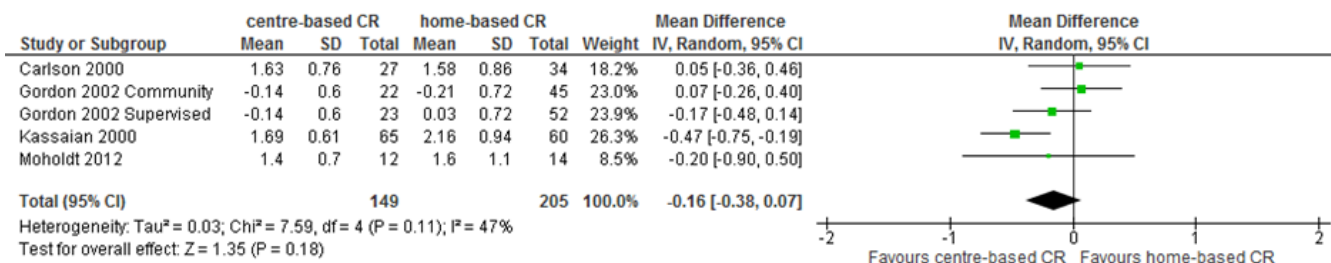
Supplementary Figure D: Blood lipids mmol/l: Total cholesterol 3 to 12 months



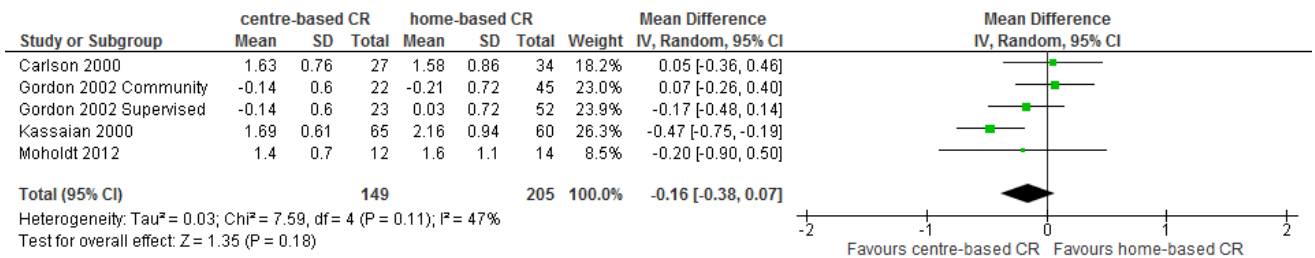
Supplementary Figure E: Blood lipids mmol/l: HDL cholesterol 3 to 12 months



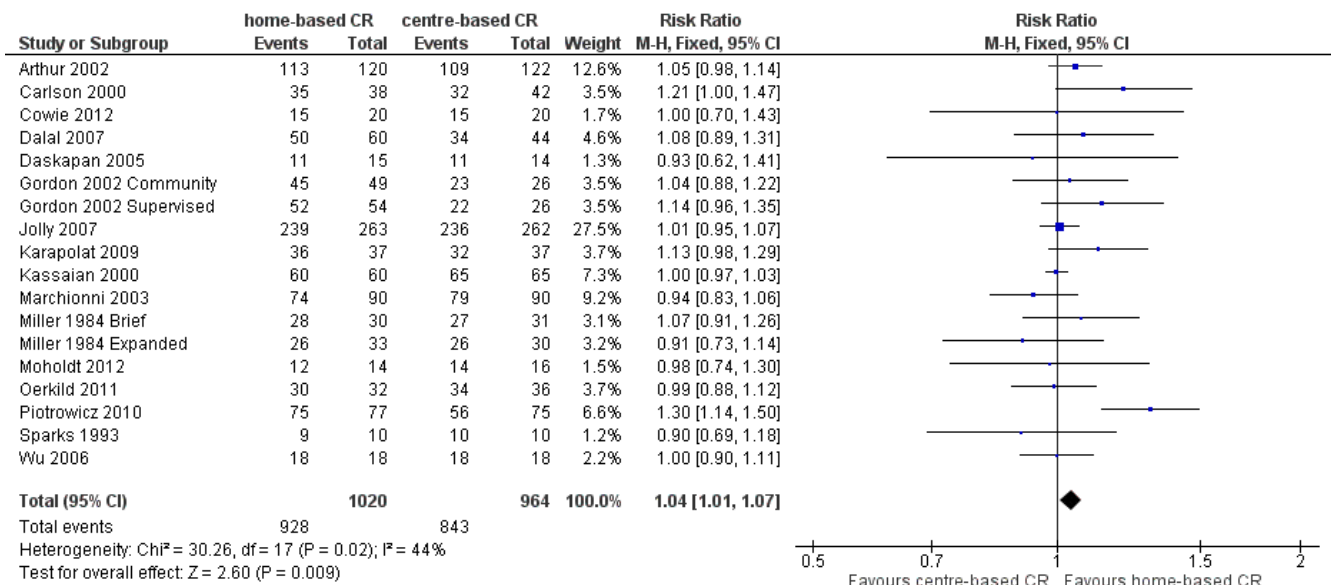
Supplementary Figure F: Blood lipids mmol/l: LDL cholesterol 3 to 12 months



Supplementary Figure G: Blood lipids mmol/l: triglycerides 3 to 12 months



Supplementary Figure H: Smoking 3 to 12 months



Supplementary Figure I: Number of participants with outcome data at follow-up (completers)

Example of search strategy (MEDLINE OVID database)

MEDLINE OVID

1. exp Myocardial Ischemia/
2. (myocard* adj3 isch?mi*).tw.
3. (isch?mi* adj3 heart).tw.
4. exp Coronary Artery Bypass/
5. coronary.tw.
6. exp Coronary Disease/
7. exp Myocardial Revascularization/
8. exp Myocardial Infarction/
9. (myocard* adj3 infarct*).tw.
10. (heart adj3 infarct*).tw.
11. exp Angina Pectoris/
12. angina.tw.
13. exp Heart Failure/
14. (heart adj3 (failure or attack)).tw.
15. exp Heart Diseases/
16. (heart adj3 disease*).tw.
17. myocard*.tw.
18. cardiac*.tw.
19. CABG.tw.
20. PTCA.tw.
21. (stent* adj3 (heart or cardiac*)).tw.
22. Heart Bypass, Left/
23. exp Heart Bypass, Right/
24. or/1-23
25. Rehabilitation Centers/
26. exp Exercise Therapy/
27. Sports/
28. Physical Exertion/
29. rehabilitat*.tw.
30. (physical* adj3 (fit* or train* or therap* or activit*)).tw.
31. exp Exercise/
32. (train* adj3 (strength* or aerobic or exercise*)).tw.
33. ((exercise* or fitness) adj3 (treatment or intervent* or program*)).tw.
34. exp Rehabilitation/
35. Patient Education as Topic/
36. (patient* adj3 educat*).tw.
37. ((lifestyle or life-style) adj3 (intervent* or program* or treatment*)).tw.
38. exp Self Care/
39. exp Ambulatory Care/
40. exp Psychotherapy/
41. psychotherap*.tw.
42. (psycholog* adj3 intervent*).tw.
43. relax*.tw.
44. Relaxation Therapy/
45. exp Counseling/
46. counsel?ing.tw.

47. exp Cognitive Therapy/
48. exp Behavior Therapy/
49. (behavio?r* adj4 (modif* or therap* or rehab* or change)).tw.
50. exp Stress, Psychological/
51. (stress adj3 manage*).tw.
52. (cognitive* adj3 therap*).tw.
53. exp Meditation/
54. meditat*.tw.
55. Anxiety/
56. (manage* adj3 (anxiety or depres*)).tw.
57. CBT.tw.
58. hypnotherap*.tw.
59. (goal adj3 setting).tw.
60. (psycho-educat* or psychoeducat*).tw.
61. (motivat* adj3 interv*).tw.
62. exp Psychopathology/
63. psychopathol*.tw.
64. exp Autogenic Training/
65. autogenic*.tw.
66. (self adj3 (manage* or care or motivat*)).tw.
67. distress*.tw.
68. (psychosocial* or psycho-social*).tw.
69. exp Health Education/
70. ((nutrition or diet or health) adj3 education).tw.
71. heart manual.tw.
72. home based.tw.
73. or/25-72
74. randomized controlled trial.pt.
75. controlled clinical trial.pt.
76. randomized.ab.
77. placebo.ab.
78. drug therapy.fs.
79. randomly.ab.
80. trial.ab.
81. groups.ab.
82. 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81
83. exp animals/ not humans.sh.
84. 82 not 83
85. 24 and 73 and 8
86. (2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014*).ed.
87. 85 and 86

References for excluded studies

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- Sinclair, A., Conroy, S., Davies, M., *et al.* Post-discharge home-based support for older cardiac patients: a randomised controlled trial. *Age and Ageing* 2005;34(4):338-43.

Tygesen, H., Wettervik, C. & Wennerblom, B. Intensive home-based exercise training in cardiac rehabilitation increases exercise capacity and heart rate variability. *Int J Cardiol.* 2001;79(2-3):175-82.