

e-supplement I: Search strategy in Medline

1. (myocard\$4 adj5 (ischaemi\$2 or ischemi\$2)).ti,ab.
2. ((ischaemi\$2 or ischemi\$2) adj5 heart).ti,ab.
3. coronary.ti,ab.
4. (myocard\$5 adj5 infarct\$5).ti,ab.
5. (heart adj5 infarct\$5).ti,ab.
6. angina.ti,ab.
7. (heart adj5 failure).ti,ab.
8. (HFNEF or HFPEF or HFREF or "HF NEF" or "HF PEF" or "HF REF").ti,ab.
9. or/1-8
10. (heart adj5 disease\$2).ti,ab.
11. myocard\$5.ti,ab.
12. cardiac\$2.ti,ab.
13. CABG.ti,ab.
14. PTCA.ti,ab.
15. (stent\$4 and (heart or cardiac\$4)).ti,ab.
16. or/10-15
17. Physical Exertion/ or exertion.ti,ab.
18. rehabilitat\$5.ti,ab.
19. (physical\$4 adj5 (fit or fitness or train\$5 or therap\$5 or activit\$5)).ti,ab.
20. (train\$5 adj5 (strength\$3 or aerobic or exercise\$4)).ti,ab.
21. ((exercise\$4 or fitness) adj5 (treatment or intervent\$4 or programs\$2 or therapy)).ti,ab.
22. (patient\$2 adj5 educat\$4).ti,ab.
23. ((lifestyle or life-style) adj5 (intervent\$5 or program\$2 or treatment\$2)).ti,ab.
24. (self adj5 (manage\$5 or care or motivate\$5)).ti,ab.
25. psychotherap\$2.ti,ab.
26. (psycholog\$5 adj5 intervent\$5).ti,ab.
27. relax\$6.ti,ab.
28. (counselling or counseling).ti,ab.
29. ((behavior\$4 or behaviour\$4) adj5 (modify or modificat\$4 or therap\$2 or change)).ti,ab.
30. (stress adj5 management).ti,ab.
31. (cognitive adj5 therap\$2).ti,ab.
32. meditat\$4.ti,ab.
33. (manage\$5 adj5 (anxiety or depress\$5)).ti,ab.
34. CBT.ti,ab.
35. hypnotherap\$5.ti,ab.
36. (goal adj5 setting).ti,ab.

37. (goal\$2 adj5 setting).ti,ab.
38. (psycho-educat\$5 or psychoeducat\$5).ti,ab.
39. (motivat\$5 adj5 (intervention or interv\$3)).ti,ab.
40. psychopathol\$4.ti,ab.
41. psychosocial\$4.ti,ab.
42. distress\$4.ti,ab.
43. (health adj5 education).ti,ab.
44. (heart adj5 manual).ti,ab.
45. autogenic\$5.ti,ab.
46. or/17-45
47. 9 or 16
48. 46 and 47
49. (random\$ or placebo\$).ti,ab.
50. ((singl\$3 or doubl\$3 or tripl\$3 or trebl\$3) adj5 (blind\$3 or mask\$3)).ti,ab.
51. (clinic\$3 adj trial\$2).ti,ab.
52. 49 or 50 or 51
53. 48 and 52
54. limit 53 to yr="2008 -Current"

eTable 1. Summary of included trial characteristics

Study	Study population		Intervention	Control**	Outcomes	
	Sample size Mean age Gender	NYHA class Mean LVEF			Setting Overall duration* Type of exercise Exercise prescription*	Measures+
Austin (2005) UK Single centre	N = 200 72 yrs 43% male	II to III Not reported	Centre-based <i>Total duration: 24 weeks</i> Aerobic & resistance <i>Frequency: 1-3 sessions/week</i> <i>Duration: 1.0-2.5 hrs class (8 weeks) & 1 hour class</i> <i>Intensity: Not reported</i> <i>Modality: Not reported</i> Other interventions Education, dietetics, occupational therapy & psychosocial counselling	Standard care (including monitoring of clinical status, explanation of heart failure & its treatment self-monitoring; dietary advice & contact details of clinical nurse specialist)	HRQoL, mortality	24 weeks, 5 years
Belardinelli (1999) Italy Single centre	N = 99 55 yrs 89% male	II to IV 28.2%	Centre-based <i>Total duration: 60 weeks</i> Aerobic <i>Frequency: 2-3 sessions/wk</i>	Standard medical care.	HRQoL, mortality, hospitalisation, cost-effectiveness	14, 26 months

			<i>Duration:</i> 40mins/session <i>Intensity:</i> 60% VO ₂ max <i>Modality:</i> Cycling Other interventions: None			
Belardinelli (2012) Italy Single centre	N = 123 59 yrs 78% male	II to III <59% 37	Hospital and home-based. <i>Total duration:</i> 10 years; eight weeks supervised then 12 months maintenance Aerobic <i>Frequency:</i> 2-3 sessions/wk <i>Duration:</i> 40mins/session <i>Intensity:</i> 60% max VO ₂ for first 2 months, and thereafter at 70% max VO ₂ <i>Modality:</i> cycling Other interventions: None	Standard medical care. Participants were instructed to continue with their usual home daily physical activities, avoiding exercise training in a supervised environment. They were free to perform aerobic activities such as walking, cycling (home or outside), and swimming, avoiding a duration of longer than 30 min.	HRQoL, mortality, hospitalisation, cost-effectiveness	10 years
Bocalini (2008) Brazil Single centre	N = 42 61 yrs 88% male	II to III ≤ 45%	Centre-based <i>Total duration:</i> six months Aerobic <i>Frequency:</i> 3 sessions/week	Usual medical therapy - individual dietary guidance and pharmacological therapy	HRQoL, hospitalisation	6 months

			<p><i>Duration:</i> 90 minutes/session</p> <p><i>Intensity:</i> target heart rate (50% of work in the maximal heart rate)</p> <p><i>Modality:</i> walking on a treadmill</p> <p>Other interventions: Relaxation and stretching exercises before and after every session</p>			
DANREHAB (2008) Denmark Single centre	N = 51 Not reported 90% male	Not reported	<p>Centre-based plus home-based</p> <p><i>Total duration:</i> 12 weeks</p> <p>Aerobic & resistance</p> <p><i>Frequency:</i> 3 sessions/week</p> <p><i>Duration:</i> 90 mins/session</p> <p><i>Intensity:</i> 50% maximum HR</p> <p><i>Modality:</i> Not stated</p> <p>Other interventions: patient education, exercise training, dietary counselling, smoking cessation, psychosocial support.</p>	Usual care patients were offered follow-up treatment prescribed by the discharging physician either as outpatient control or by the general practitioner. The pharmaceutical treatment followed routine clinical practice based on current national guidelines. The discharging nurse or	Mortality, HRQoL, hospitalisation.	12 months

				physician determined whether patients were referred to smoking cessation and dietary counselling parallel to outpatient treatment		
Davidson (2010) Australia Single-centre	N = 105 73 yrs 67% male	I to III Not reported	Centre and home-based <i>Total duration:</i> 12 weeks Aerobic <i>Frequency:</i> one session/week <i>Duration:</i> 30-50 mins/session <i>Intensity:</i> Not reported <i>Modality:</i> Gymnasium: treadmills, stationary cycles, recumbent cycles Home-based: hall walks, stairs and sporting activities such as lawn bowls Other interventions: also attended nurse-coordinated (NC) CR clinic with emphasis of self-management. Group	Information session and then usual medical care	HRQoL, mortality, hospitalisation	12 months

			based educational sessions. Exercise group attended NC CR clinic, where comprehensive assessment was performed by physiotherapists, CR coordinators, and occupational therapist.			
Dracup (2007) USA Multicentre	N =173 54 yrs 72% male	II to IV 26.4%	Home-based <i>Total duration:</i> 1 year Aerobic & resistance <i>Frequency:</i> 4 sessions/week <i>Duration:</i> 10 to 45 mins/session <i>Intensity:</i> 40 to 60% max HR. <i>Modality:</i> Walking <i>Setting:</i> Home-based Other interventions: None	Maintained usual level of daily activities. No exercise component.	HRQoL, mortality, hospitalisation	6, 12 months
Gary (comp) (2010) USA Single centre	N = 28 66 yrs 41.9% male	II to III ≥ 15%	' <i>Combined CBT/EX</i> ' <i>Total duration:</i> 12 weeks Aerobic <i>Frequency:</i> three sessions/week	' <i>CBT alone</i> ' "The CBT intervention was based on Beck's CBT model of depression"	HRQoL, mortality	6 months

			<p><i>Duration:</i> 30-45 mins/session, max 1 hour</p> <p><i>Intensity:</i> Borg <15</p> <p><i>Modality:</i> walking</p> <p>Other interventions Exercise group also received 12 weeks weekly 1-hr sessions of CBT for 12 weeks.</p>			
<p>Gary (exalone) (2010)</p> <p>USA</p> <p>Single centre</p>	<p>N = 37</p> <p>66 yrs</p> <p>41.9%</p> <p>male</p>	<p>II to III</p> <p>≥ 15%</p>	<p><i>'Ex alone'</i></p> <p>Home-based</p> <p><i>Total duration:</i> 12 weeks</p> <p>Aerobic</p> <p><i>Frequency:</i> three sessions/week</p> <p><i>Duration:</i> 30-45mins/session, max 1 hour</p> <p><i>Intensity:</i> Borg < 15</p> <p><i>Modality:</i> walking</p> <p>Other interventions</p> <p>None</p>	<p><i>'Usual care'</i></p> <p>"Participants assigned to the UC group received no information or counselling from their health care provider other than that normally provided."</p>	<p>HRQoL, mortality</p>	<p>6 months</p>
<p>Giannuzzi (2003)</p> <p>Italy</p> <p>Multicentre</p>	<p>N = 90</p> <p>61 yrs</p> <p>Not</p>	<p>II to III</p> <p>< 35%</p>	<p>Centre-based</p> <p><i>Total duration:</i> 6-months</p> <p>Aerobic</p>	<p>Educational support and usual medical therapy but no formal exercise</p>	<p>Mortality, hospitalisation</p>	<p>6 months</p>

	reported		<i>Frequency:</i> 3-5 sessions/week <i>Duration:</i> 30 mins/session <i>Intensity:</i> 60% peak VO ₂ <i>Modality:</i> Exercise cycle, daily brisk walk, callisthenic. Other interventions None	protocol		
Gielen (2003) Switzerland Single centre	N = 20 54 yrs 100% male	II to III 25.8%	Centre & home-based <i>Total duration:</i> 6-months Aerobic <i>Frequency:</i> 7 sessions/wk; <i>Duration:</i> 20 mins/session <i>Intensity:</i> 70% symptom limited VO ₂ max; <i>Modality:</i> Cycle ergometers Other interventions None	Continued sedentary lifestyle & remain on individually tailored cardiac medication	Mortality	6 months
Gottlieb (1999) USA Single centre	N = 33 66 yrs 86% male	II to III < 40%	Centre-based <i>Total duration:</i> 6-months Aerobic <i>Frequency:</i> 3 session/week; <i>Duration:</i> not reported <i>Intensity:</i> Borg 12-13	Usual care	Mortality, HRQoL	6 months

			<i>Modality:</i> Bike and treadmill Other interventions None			
Hambrecht (1995) Germany Single centre	N = 22 51 yrs 100% male	II to III 26.5%	Centre & home-based <i>Total duration:</i> 6-months Aerobic <i>Frequency:</i> 4-6 sessions/wk; <i>Duration:</i> 10-60 mins/session, 1 hour at home. <i>Intensity:</i> 70% VO ₂ max; <i>Modality:</i> Cycling, walking, ball games and calisthenics Other interventions: None	Medical therapy continued	Mortality, hospitalisation	6 months
Hambrecht (1998) Germany Single centre	N = 20 55 yrs 100% male	II to III 23.5%	Centre & home-based <i>Total duration:</i> 6-months Aerobic <i>Frequency:</i> 2-6 sessions/day <i>Duration:</i> 10-20 mins/session <i>Intensity:</i> 70% VO ₂ max <i>Modality:</i> Bike ergometer Other interventions: None	Continue on previous medication & sedentary lifestyle	Mortality	6 months
Hambrecht (2000) Germany	N = 73 54 yrs	I to IV 29%	Centre & home-based <i>Total duration:</i> 6-months	Individually tailored cardiac medications	Mortality	6 months

Single centre	100% male		Aerobic <i>Frequency:</i> 4-6 sessions/wk; <i>Duration:</i> 15-60 mins/session <i>Intensity:</i> 60-70% VO ₂ max <i>Modality:</i> Cycling, walking, ball games and callisthenics Other interventions: None			
HF-ACTION (2009) USA/Canada/France Multicentre	N = 2331 59 yrs 72% male	II to III 25%	Centre & home-based <i>Total duration:</i> 36-months Aerobic <i>Frequency:</i> 3-5 sessions/wk; <i>Duration:</i> 15-35 mins/session. <i>Intensity:</i> 60-70% of heart rate reserve <i>Modality:</i> Cycling or walking Other interventions: None	Usual care including self-management educational materials	Mortality, hospitalisation, HRQoL, cost-effectiveness	6, 9, 12, 24, 36-months
Jolly (2009) UK Single centre	N = 169 68 yrs 75% male	I to III ≤ 40%	Centre-based and Home-based <i>Total duration:</i> 6 months Aerobic & resistance <i>Frequency:</i> five times a week <i>Duration:</i> 20-30mins/session <i>Intensity:</i> 70% of peak VO ₂ or	Specialist heart failure nurse care	HRQoL hospitalisation, mortality	6, 12 months

			<p>Borg 12-13</p> <p><i>Modality:</i> aerobic and resistance elements (upper & lower limb exercises)</p> <p>Other interventions: Specialist heart failure nurse care</p>			
<p>Jónsdóttir (2006)</p> <p>Iceland</p> <p>Single centre</p>	<p>N = 43</p> <p>69 yrs</p> <p>79% male</p>	<p>II to III</p> <p>41%</p>	<p>Centre-based</p> <p><i>Total duration:</i> 5 months</p> <p>Aerobic & resistance</p> <p><i>Frequency:</i> 2 sessions/week</p> <p><i>Duration:</i> 45 mins/session</p> <p><i>Intensity:</i> Not reported</p> <p><i>Modality:</i> Cycling, free weights and elastic rubber-bands (Thera-bands)</p> <p>Other interventions: The training group had three educational lectures, about nutrition, physical activity and relaxation in addition to the exercise program.</p>	<p>Usual medical care (continued their previous level of physical activity which varied from performing little physical activity up to taking a daily walk outdoors).</p>	<p>Hospitalisation, mortality</p>	<p>12, 28 months</p>
<p>Ketayian (1996)</p>	<p>N = 40</p>	<p>II to III</p>	<p>Centre-based</p>	<p>Maintain their normal</p>	<p>Mortality,</p>	<p>24 weeks</p>

USA Single centre	56 yrs 100% male	21%	<i>Total duration: 24 weeks</i> <i>Aerobic</i> <i>Frequency: 3 sessions/wk</i> <i>Duration: 33 mins/session</i> <i>Intensity: 60-80% peak HR;</i> <i>Modality: treadmills, stationary cycles, rowing machines & arm ergometers</i> Other interventions None	daily activity habits & not to begin exercise regimen.	hospitalisation	
Kletcha (2007) Poland Single centre	N = 50 60 yrs 76% male	II to III 27.9%	Centre-based <i>Total duration: 6-months</i> <i>Aerobic</i> <i>Frequency: 3 sessions/week</i> <i>Duration: 25 mins/session</i> <i>Intensity: 80% predicted HR at VO2 max</i> <i>Modality: Cycling.</i> Other interventions None	Standard medical care only	Mortality	6 months
Klocek (const) (2005) Poland	N = 21 54 yrs 100%	II to III 33.4%	'Constant workload' Centre-based <i>Total duration: 6-months</i>	Maintain degree of physical activity during the study	HRQoL	26 weeks

Single centre	male		Aerobic <i>Frequency: 3 sessions/week</i> <i>Duration: 20 minutes/session</i> <i>Intensity: 60% max HR</i> <i>Modality: cycle ergometer.</i> Other interventions: None			
Klocek (prog) 2005 Poland Single centre	N = 21 56 yrs 100% male	II to III 33.7%	'Progressive workload' Centre-based <i>Total duration: 6-months</i> Aerobic <i>Frequency: 3 sessions/week</i> <i>Duration: 25 minutes/session</i> <i>Intensity: 75% max HR</i> <i>Modality: Cycle ergometer</i> Other interventions: None	Maintain degree of physical activity during the study	HRQoL	26 weeks
Koukouvou 2004 Greece Single centre	N = 26 53 yrs 100% male	II to III < 40%	Centre-based <i>Total duration: 6-months</i> Aerobic & resistance <i>Frequency: 3-4 sessions/week</i> <i>Duration: 60 mins/session</i> <i>Intensity: 50-75% peak VO₂</i> <i>Modality: Cycle ergometer, walking or jogging, stair</i>	Not stated	HRQoL	26 weeks

			climber & step-aerobics. Other interventions: None			
McKelvie (2002) Canada Multicentre	N = 181 65 yrs 81% male	I to II < 40%	Centre & home-based <i>Total duration:</i> 12-months Aerobic & resistance <i>Frequency:</i> 2 sessions/week <i>Duration:</i> 30 mins/session <i>Intensity:</i> 60-70% max heart rate <i>Modality:</i> Cycle, treadmill, & arm ergometry exercise Other interventions: None	Usual medical care & encouraged to continue usual level of physical activity	HRQoL, mortality	12 months
Mueller (2007) Switzerland Single centre	N = 50 55 yrs 100% male	Not reported < 40%	Centre-based <i>Total duration:</i> 1-month Aerobic <i>Frequency:</i> 5 sessions/wk <i>Duration:</i> 120 min/session <i>Intensity:</i> Borg 12-14 (60-80% max HR) <i>Modality:</i> Cycling & walking Other interventions: None	Usual care	Mortality, hospitalisation	5 years
Myers (2000)	N = 25 56.5 yrs	Not reported	Centre-based <i>Total duration:</i> 2 months	Usual clinical follow-up	Hospitalisation, mortality	2, 12 months

Switzerland Single centre	100% male	32.4%	<p>Aerobic</p> <p><i>Frequency:</i> Walking: two sessions/daily, Cycling: four sessions/week</p> <p><i>Duration:</i> Walking: one hour/session Cycling: 45 minutes/session</p> <p><i>Intensity:</i> Walking: Not reported, Cycling: 60%-70% peak VO₂</p> <p><i>Modality:</i> walking and cycling</p> <p>Other interventions: Exercise groups received education sessions and low-fat meals prepared 3 times daily.</p>			
Nilsson (2008) Norway Single centre	N = 80 70.1 yrs 79% male	II to III 31%	<p><i>Total duration:</i> 4 months</p> <p>Aerobic</p> <p><i>Frequency:</i> two sessions/week</p> <p><i>Duration:</i> 50 minutes</p> <p><i>Intensity:</i> 15-18 on Borg scale</p> <p><i>Modality:</i> fast walking, side stepping and leg lifts in combination with overhead</p>	The control group was not provided with exercise prescriptions and encouraged to continue their usual levels of physical activity.	HRQoL, mortality	12 months

			arm reaches. Other interventions 15-30 mins counselling for patients in exercise group with HF nurse (4 hours in total)			
Norman (2012) USA Single centre	N = 42 60 yrs 57.5% male	II to III 32.5%	Centre and home-based <i>Total duration:</i> 24 weeks Aerobic & resistance <i>Frequency:</i> aerobic three days/week, resistance two days/week <i>Duration:</i> Aerobic; 30 mins/session (30 mins warm-up), Resistance; 8 to 10 exercises (upper and lower extremity) performed for one set of 10 to 15 repetitions. <i>Intensity:</i> Aerobic; 40% to 70% heart rate reserve, or Borg 11-14. (Resistance; Not reported) <i>Modality:</i> Aerobic; Not reported, Resistance; weight machines, free weights, or	' <i>Attention control</i> ' "Instructions to continue with their normal level of activity. No instructions were given to withhold or stop activity."	HRQoL, mortality	6 months

			<p>elastic bands based on their exercise performance.</p> <p>Other interventions: group meetings that addressed the same education topics as the control group but in addition included information on problem solving barriers to exercise, relapse management, and symptoms experienced during exercise.</p>			
<p>Passino (2006)</p> <p>Italy</p> <p>Single centre</p>	<p>N = 95</p> <p>61 yrs</p> <p>87%</p>	<p>I to III</p> <p>34.1%</p>	<p>Centre-based</p> <p><i>Total duration:</i> 9 months</p> <p>Aerobic</p> <p>Frequency: > 3 sessions/week</p> <p>Duration: 30 mins/session</p> <p>Intensity: 65% max VO₂</p> <p>Modality: Cycle</p> <p>Other interventions: None</p>	<p>Usual lifestyle & physical activity.</p>	<p>HRQoL, hospitalisation</p>	<p>9 months</p>
<p>Pozehl (2007)</p> <p>USA</p> <p>Single centre</p>	<p>N = 21</p> <p>66 yrs</p> <p>90% male</p>	<p>II to IV</p> <p>28.7%</p>	<p>Centre-based</p> <p><i>Total duration:</i> 24 weeks</p> <p>Aerobic & resistance</p> <p><i>Frequency:</i> 3 sessions/week</p>	<p>No formal exercise program</p>	<p>Mortality</p>	<p>24 weeks</p>

			<i>Duration:</i> 30 mins/session <i>Intensity:</i> 60-85% VO ₂ max <i>Modality:</i> Treadmill, stationary bike, rower & arm ergometer Other interventions: None			
Wall (2010) USA Single centre	N = 19 69.5 yrs 58% male	Not reported ≤ 60%	Centre and home-based <i>Total duration:</i> 12 months Aerobic <i>Frequency:</i> three sessions/week <i>Duration:</i> >15 minutes/session <i>Intensity:</i> Not reported <i>Modality:</i> treadmill Other interventions: comprehensive disease management program	Comprehensive disease management - by dedicated case manager (patient education on nutrition, medications, and disease management; an oximetry assessment; and constant monitoring of symptomatic changes and disease status.	HRQoL, mortality	12 months
Willenheimer (2001) Sweden Single centre	N = 54 64 yrs 72% male	I to III 45.5%	Centre-based <i>Total duration:</i> 16 weeks Aerobic <i>Frequency:</i> 2-3 sessions/week <i>Duration:</i> 15-45 mins/session <i>Intensity:</i> 80% peak VO ₂ (Borg	No change in physical activity	HRQoL, mortality	10 months

			score 15) <i>Modality: cycle ergometry</i> Other interventions: None			
Witham (2005) UK Single centre	N = 82 80.5 yrs 55% male	II to III Not reported	Hospital and home-based <i>Total duration: 6 months</i> Aerobic & resistance <i>Frequency: two-three sessions/week</i> <i>Duration: 20min/session</i> <i>Intensity: Borg 11-13</i> <i>Modality: walking and wrist/ankle weights</i> Other interventions: None	Usual medical care	HRQoL, mortality, hospitalisation	6 months
Witham (2012) UK Single-centre	N = 107 79.9 yrs 36% male	II to III Not reported	Hospital and home-based <i>Total duration: 24 months</i> Aerobic & resistance <i>Frequency: two sessions/week</i> <i>Duration: ≤ 60 minutes</i> <i>Intensity: Not reported</i> <i>Modality: Home; walking</i> Other interventions: cognitive and behavioural techniques were incorporated into first	Usual medical care (given a booklet with general advice on diet, exercise and lifestyle). Not discouraged from exercising if they were already in the habit of doing so.	HRQoL, mortality, hospitalisation, costs	6 months

			eight week hospital based rehabilitation. Resistance training with elasticised bands.			
Yeh 2011 USA Multi-centre	N = 100 67.4 yrs 64%	I to III 29%	Centre and home-based <i>Total duration:</i> 12 weeks Aerobic <i>Frequency:</i> 2 sessions/week (for 12 weeks) & encouraged to practice at home at least 3 times/week <i>Duration:</i> 1 hr (30 min warm-up)/session <i>Intensity:</i> not-reported <i>Modality:</i> Tai chi movements Other interventions: None	Education group (“attention control”): nurse practitioner lead education session (same duration and frequency as the tai chi group classes) Participants were asked not to start tai chi classes during the study	HRQoL, mortality, hospitalisation	12 weeks, 6 months

*Aerobic exercise training prescription; +: outcomes relevant to this review; **: as stated by authors.

HRQoL: health-related quality of life; MLWHF: Minnesota Living with Heart Failure questionnaire; KCCQ: Kansas City Cardiomyopathy Questionnaire; CBT: cognitive behavioural therapy; VO₂max: maximum oxygen uptake

Two studies contributes two comparisons, i.e., Gary(comp): exercise training + CBT vs no exercise + CBT alone, Gary(exalone): exercise training vs. no exercise (2012), Klocek(prog): progressive exercise training vs no exercise, Klocek(const): constant exercise training vs no exercise training.

eTable 2. Costs and cost-effectiveness results

Author (year)	Georgiou (2001)	HF-ACTION Reed (2010)	Witham (2012)
Year of costs	1998	2008	2010
Country	US	US	UK
Currency	\$	\$	£
Intervention cost			
Mean costs/patient	US\$ 4,563	US\$ 6,483 (SD 4,884)	£ 474.75
Costs considered	staffing, space rental, equipment , patient's lost wages	staffing, patient time, travel, parking	Staffing, equipment, staff and patient travel
Cost effectiveness			
Follow up period	15.5 years	Mean 2.5 years	6 months
Total mean healthcare cost/patient (exercise)	US \$5,282*	US\$ 57,338 (SD 81,343)+	£ 1888.24 (SD 3111)
Total mean healthcare costs per patient (control)	US\$ 2,055*	US\$ 56,177 (SD 92,749)+	£ 1943.93 (SD 4551)
Incremental healthcare costs	3227*	US\$ 1,161 (95% CI: -6,205 to 8,404)	£ -447.85 (95% CI: -1696.00 to 931.00)
Additional healthcare costs considered	hospitalisations	Medication, procedures, outpatient visits, emergency visits, hospitalisations, tests	Inpatient and outpatient admissions, primary care contacts, medication

Mean health care benefit (exercise)	10.24 life years	2.02 QALYs (SD 1.00)	
Mean health care benefit (control)	7.96 life years	1.99 QALYS (SD 1.01)	
Incremental mean health care benefit	1.82 life years*	0.03 (95% CI: -0.06 to 0.11)	
Incremental cost effectiveness ratio	US\$ 1,773 per life year saved	Not reported	

QALY: quality adjusted life years; SD: standard deviation

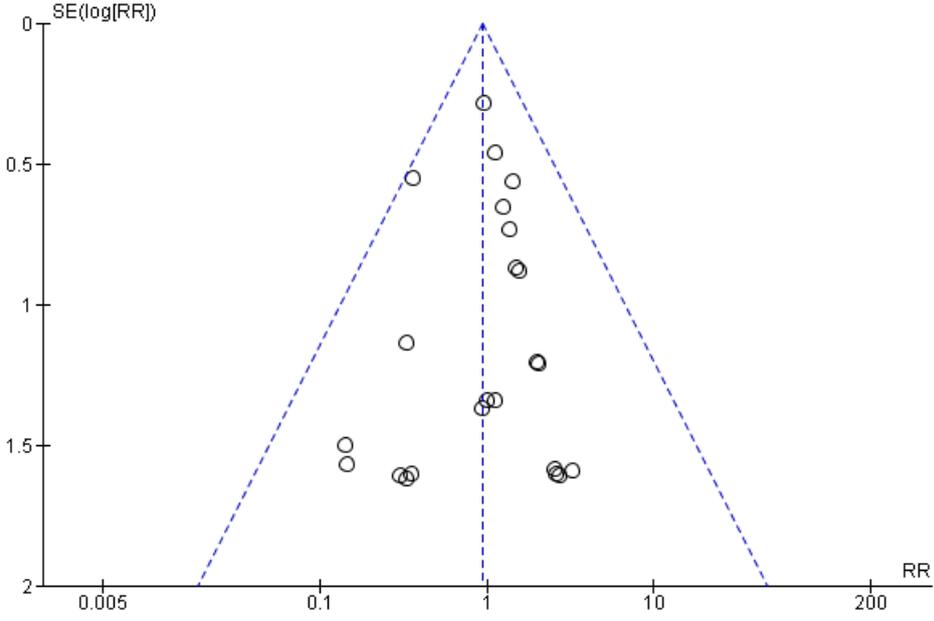
*Assumed discount rate for cost and outcomes of 3% per annum; +Assumed rate for costs of 3% per annum;

eTable 3. Trial level subgroup analyses

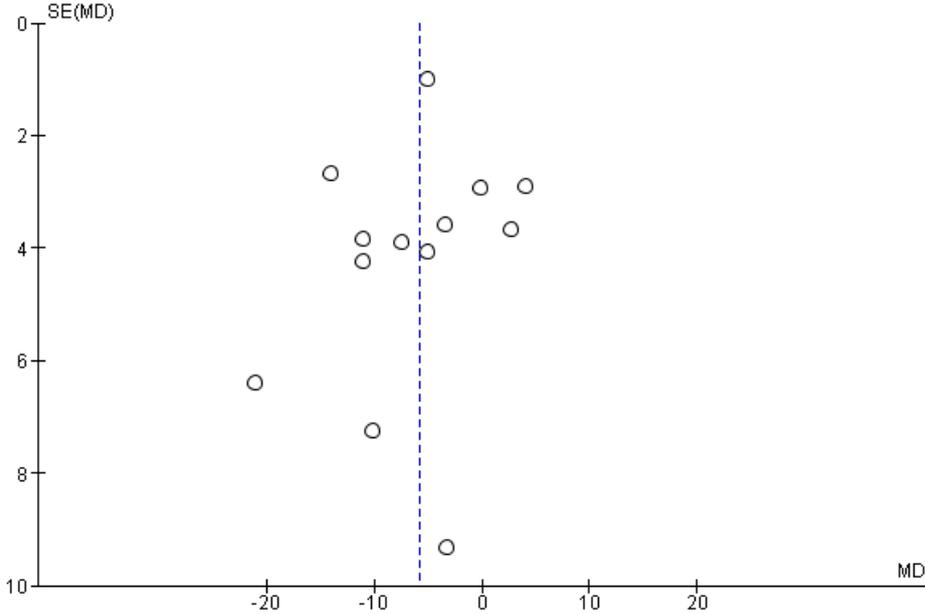
Author (year)	Outcome(s)	Subgroup(s)	Results (P-value)	Data analysis methods
HF ACTION (O'Connor, 2009)	Composite primary end point of all-cause mortality or hospitalization, median follow up 30 months	Age (≤ 70 yrs vs. > 70 yrs), gender (males vs females), race (white vs non-white), heart failure aetiology (ischemic vs non ischemic), baseline LVEF ($\leq 25\%$ vs $> 25\%$), baseline NHYA (II vs. III/IV), previous revascularisation, history of MI, on ACE or beta-blocker at baseline	"there was no significant interaction of exercise training with any of the factors defining these subgroups"(P > 0.05)	Interaction test on hazard ratio
HF ACTION (Flynn, 2009)	Kansas City Cardiomyopathy Questionnaire (KCCQ) overall score up to 36 months	Age, left ventricular ejection fraction ($\leq 25\%$ or $> 25\%$), previous revascularization (coronary artery bypass graft surgery or percutaneous coronary intervention, or no previous revascularization), history of myocardial infarction, and KCCQ overall summary score at baseline (0-50, 50-75, or 75-100).	No significant subgroup interactions (P > 0.05)	Interaction test
HF ACTION Keteyian (2012)	all-cause mortality or hospitalization and cardiovascular mortality	Exercise volume defined as metabolic equivalent [MET]-hrs. per week, i.e., product of exercise intensity (where	Exercise volume was linear logarithmic predictor (P = 0.03) for all-cause mortality or hospitalization. For	Regression-based methods (based only on

	or HF hospitalization at median follow up 28.2 months	1 MET is 3.5 ml VO ₂ / kg/min) and the hours of exercise per week.	cardiovascular mortality or HF hospitalization, exercise volume was a significant (P < 0.001) linear and logarithmic predictor. Moderate exercise volumes of 3 to 5 metabolic equivalent (MET)-hrs. and 5 to 7 MET-h per week were associated with reductions in subsequent risk that exceeded 30%.	exercise group data)
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eFigure 1a. Funnel plot for all-cause mortality up to 12 months follow up



eFigure 1b. Funnel plot for MLWHF to 12 months follow up



eFigure 1c. Funnel plot for all health-related quality of life outcomes up to 12-months follow up

