Online Supplement 1. Search Strategies – final search date: 31/07/2014.

MEDLINE

1. exp telemedicine/ OR exp telemetry/ OR exp telephone/ OR exp wireless technology/ OR exp computers, handheld/ OR exp internet/
2. (telemedicine OR telemetry OR telephone OR wireless technology OR computers, handheld OR internet OR telehealth OR telemonitor* OR telerehab* OR web*).tw.
3. ((tele* OR remote OR mobile) ADJ3 (medicine OR health OR monitor* OR rehab*)).tw.
4. (mhealth OR m-health OR mobile-health).tw.
5. (((mobile OR cell* OR smart) AND phone) OR smartphone).tw.
6. (tablet and (computer or app) or ipad).tw.
7. (mobile AND app*).tw.
8. OR/ 1-7
9. exp myocardial ischemia/
10. (myocardial ADJ3 (isch?em* OR infarct*)).tw.
11. (coronary ADJ3 (disease OR bypass OR syndrome) OR angioplasty OR percutaneous coronary intervention OR angina OR stent).tw.
12. OR/ 9-11
13. exp rehabilitation/ OR exp exercise/ OR exp physical fitness/
14. ((rehabilitation OR exercise OR fitness) AND (therap* OR train* OR program* OR treatment OR interven*)).tw.
15. OR/ 13-14
16. 8 AND 12 AND 15

CINAHL

1. MH telehealth+ OR MH telemetry+ OR MH telephone+ OR MH wireless technology+ OR MH computers, handheld+ OR MH internet+
2. telehealth OR telemetry OR telephone OR wireless technology OR computers, handheld OR internet OR telemedicine OR telemonitor* OR telerehab* OR web*
3. (tele* OR remote OR mobile) N3 (medicine OR health OR monitor* OR rehab*)
4. mhealth OR m-health OR mobile-health
5. ((mobile OR cell* OR smart) AND phone) OR smartphone
6. tablet AND (computer OR app) OR ipad
7. mobile AND app*
8. S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
9. MH myocardial ischemia+
10. myocardial N3 (isch#em* OR infarct*)
11. coronary N3 (disease OR bypass OR syndrome) OR angioplasty OR percutaneous coronary intervention OR angina OR stent
12. S9 OR S10 OR S11
13. MH rehabilitation+ OR MH exercise+ OR MH physical fitness+
14. (rehabilitation OR exercise OR fitness) AND (therap* OR train* OR program* OR treatment OR interven*)
15. S13 OR S14
16. S8 AND S12 AND S15

The Cochrane Library

1. [Telemedicine]
2. [Telemetry]

3. [Telephone]
4. [Wireless Technology]
5. [Computers, Handheld]
6. [internet]
7. telemedicine OR telemetry OR telephone OR wireless technology OR computers, handheld OR internet OR telehealth OR telemonitor* OR telerehab* OR web*
8. (tele* OR remote OR mobile) NEAR/3 (medicine OR health OR monitor* OR rehab*)
9. mhealth OR m-health OR mobile-health
10. ((mobile OR cell* OR smart) AND phone) OR smartphone
11. tablet AND (computer OR app) OR ipad
12. mobile AND app*
13. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12
14. [Myocardial Ischemia]
15. myocardial NEAR/3 (isch*m* OR infarct*)
16. coronary NEAR/3 (disease OR bypass OR syndrome) OR angioplasty OR percutaneous coronary intervention OR angina OR stent
17. #14 OR #15 OR #16
18. [Rehabilitation]
19. [Exercise]
20. [Physical Fitness]
21. (rehabilitation OR exercise OR fitness) AND (*therap* OR train OR program* OR treatment OR interven*)
22. #18 OR #19 OR #20 OR #21
23. #13 AND #17 AND #22

Embase

1. exp telemedicine/ OR exp telemetry/ OR exp telephone/ OR wireless communication/ OR microcomputer/ OR exp internet/
2. (telemedicine OR telemetry OR telephone OR wireless communication OR microcomputer OR internet OR telehealth OR telemonitor* OR telerehab* or web*).tw.
3. ((tele* OR remote OR mobile) ADJ3 (medicine OR health OR monitor* OR rehab*)).tw.
4. (mhealth OR m-health OR mobile-health).tw.
5. (((mobile or cell* or smart) and phone) or smartphone).tw.
6. (tablet AND (computer OR app) OR ipad).tw.
7. (mobile and app*).tw.
8. OR/ 1-7
9. exp ischemic heart disease/ OR exp heart muscle ischemia/ OR exp coronary artery disease
10. (myocardial ADJ3 (isch?em* OR infarct*)).tw.
11. (coronary ADJ3 (disease OR bypass OR syndrome) OR angioplasty OR percutaneous coronary intervention OR angina OR stent).tw.
12. OR/ 9-11
13. exp rehabilitation/ OR exp exercise/ OR exp fitness/
14. ((rehabilitation OR exercise OR fitness) AND (therap* OR train* OR program* OR treatment OR interven*)).tw.
15. OR/ 13-14
16. 8 AND 12 AND 15

PsycInfo

1. exp telemedicine/ OR exp telemetry/ OR exp telephone systems/ OR exp mobile devices/ OR exp computer assisted therapy/ OR exp internet/
2. (telemedicine OR telemetry OR telephone systems OR mobile devices OR computer assisted therapy OR internet OR telehealth OR telemonitor* OR telerehab* OR web*).tw.
3. ((tele* OR remote OR mobile) ADJ3 (medicine OR health OR monitor* OR rehab*)).tw.
4. (mHealth OR m-health OR mobile-health).tw.
5. (((mobile OR cell* OR smart) AND phone) OR smartphone).tw.
6. (tablet AND (computer OR app) OR ipad).tw.
7. (mobile and app*).tw.
8. OR/ 1-7
9. exp myocardial infarctions/ OR exp ischemia/ OR exp angina pectoris/
10. (myocardial ADJ3 (isch?em* OR infarct*)).tw.
11. (coronary ADJ3 (disease OR bypass OR syndrome) OR angioplasty OR percutaneous coronary intervention OR angina OR stent).tw.
12. OR/ 9-11
13. exp rehabilitation/ OR exp exercise/ OR exp physical fitness/ OR exp active living/ OR exp lifestyle changes/
14. ((rehabilitation OR exercise OR fitness) AND (therap* OR train* OR program* OR treatment OR interven*)).tw.
15. Or/ 13-14
16. 8 AND 12 AND 15

PubMed

1. telemedicine [mh] OR telemetry [mh] OR telephone [mh] OR wireless technology [mh] OR computers, handheld [mh] OR internet [mh]
2. telemedicine [tw] OR telemetry [tw] OR telephone [tw] OR wireless technology [tw] OR computers, handheld [tw] OR internet [tw] OR telehealth [tw] OR telemonitor* [tw] OR telerehab* [tw] OR web* [tw]
3. (tele* [tw] OR remote [tw] OR mobile [tw]) AND (medicine [tw] OR health [tw] OR monitor* [tw] OR rehab* [tw])
4. mhealth [tw] OR m-health [tw] OR mobile-health [tw]
5. ((mobile [tw] OR cell* [tw] OR smart [tw]) AND phone [tw]) OR smartphone [tw]
6. tablet [tw] AND (computer [tw] OR app [tw]) OR ipad [tw]
7. mobile [tw] AND app* [tw]
8. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7
9. myocardial ischemia [mh]
10. (myocardial [tw] AND (isch* [tw] OR infarct* [tw])
11. (coronary [tw] AND (disease [tw] OR bypass [tw] OR syndrome [tw]) OR angioplasty [tw] OR percutaneous coronary intervention [tw] OR angina [tw] OR stent [tw]
12. #9 OR #10 OR #11
13. rehabilitation [mh] OR exercise [mh] OR physical fitness [mh]
14. (rehabilitation [tw] OR exercise [tw] OR fitness [tw]) AND (therap* [tw] OR train* [tw] OR program* [tw] OR treatment [tw] OR interven* [tw])
15. #13 OR #14
16. #8 AND #12 AND #15

Online Supplement 2. Characteristics of Included Studies [*ordered by study ID*]

Arthur 2002

Design	RCT – two arm, parallel groups	
Protocol/trial registration	No / No	
Participants	n = 122 (96 male, 79%) in TexCR, n = 120 (101 male, 83%) in CBexCR. Age = 63 ± 9 y. *Inclusion:* Post-CABG (25-49 d post-procedure); 40-80% age-predicted MET_{max} during GXT; read/write English *Exclusion:* Recurrent angina; positive GXT; unable to attend 3 exCR sessions per week; physical limitations; previous participation in outpatient CR.	
Treatments	<u>TexCR (intervention)</u> *ICT*: Telephone (exercise prescription, monitoring, behaviour change, social support). *Exercise*: 6 months. 5 sessions per week (10-15 min warm-up, 40 min aerobic training, 10-15 min cool-down). 60% $\dot{V}O_2$peak (0-3 months), 70% $\dot{V}O_2$peak (4-6 months). Bi-weekly telephone calls from exercise specialist to monitor progress/adherence and revise exercise prescription. Exercise log reviewed monthly. Consult with exercise specialist at baseline & 3 months. *Other*: Bi-weekly telephone calls from exercise specialist to provide support and education. <u>CBexCR (active control)</u> *Exercise*: 6 months. 3 centre-based supervised exCR sessions per week (10-15 min warm-up, 40 min aerobic training, 10-15 min cool-down) supervised by exercise specialists. 2 unsupervised sessions per week. 60% $\dot{V}O_2$peak (0-3 months), 70% $\dot{V}O_2$peak (4-6 months). Exercise log reviewed monthly. *Other*: No additional programme components reported.	
Outcomes	<u>Primary</u>: Exercise capacity ($\dot{V}O_2$peak). <u>Secondary</u>: Blood pressure, exercise adherence.	
Follow-up	Post-treatment (6 months) and long-term follow-up (1.5 and 7.2 years post-randomisation)	
Country	Canada.	
Risk of Bias	<u>Judgement</u>	<u>Support for judgement</u>
Sequence generation	Low risk	*"The study coordinator randomly assigned patients to study groups using a concealed randomization process. A data analyst, who had no role in this project, prepared the randomization schedule using a blocked format."*
Allocation concealment	Low risk	*"The resulting group assignments were then sealed in opaque envelopes that were opened in sequence after consent and baseline data were obtained."*
Blinding – outcome assessment	Unclear risk	Baseline outcomes assessed prior to treatment allocation. Primary outcome ($\dot{V}O_2$peak) assessment at low risk of bias. *"The physicians who evaluated the primary outcome variable were blind to patients' assignment."* Blinding of follow-up outcome assessors not specified.
Incomplete outcome data	Unclear risk	Results show dropout/loss to follow up (n = 20/242 at 6 months, n = 24/222 at 18 months, n = 52/196 at ~7.2 years, see methods regarding latter 2 time points). No detail provided about treatment of missing data at 6/18 months. Imputation of primary outcome missing data at ~7.2 years.
Intention-to-treat analysis	Low risk	*"Analyses were performed on an intention-to-treat approach."* ITT consistent across all three study reports.
Selective reporting	Unclear risk	Specified primary and secondary outcomes are reported, not all reported outcomes were specified in methods.
Other sources of bias	Unclear risk	Long-term follow-up time points included declining sub-samples of the original randomised sample.

Frederix 2013a

Design	RCT – two arm, parallel groups	
Protocol/trial registration	No / Yes	
Participants	n = 40 (32 male, 80%) in TexCR, n = 40 (34 male, 85%) in CBexCR. Age = 61 ± 10 y. *Inclusion:* PCI or CABG following ACS; computer/internet access. *Exclusion:* >80 y; ICD or pacemaker; severe arrhythmia; persistent exertional ischaemia after revascularisation therapy; NYHA class III/IV; neuro-musculoskeletal exercise limitations.	
Treatments	TexCR (intervention) *ICT*: Accelerometer, website (exercise monitoring); email, SMS (exercise prescription/feedback). *Exercise*: 1.5 months centre-based exCR followed by 3 months home-based TexCR. Accelerometer data uploaded to website. Weekly automated personalised physical activity feedback via email/SMS. Exercise prescription details not reported. *Other*: No additional programme components reported. CBexCR (active control) *Exercise*: 4.5 months supervised centre-based exCR. Exercise prescription details not reported. *Other*: No additional programme components reported.	
Outcomes	Primary: Exercise capacity ($\dot{V}O_2$peak). Secondary: Blood pressure, blood lipid/glucose concentrations, body composition, physical activity, clinical events.	
Follow-up	Post-treatment (4.5 months).	
Country	Belgium.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Unclear risk	*"Randomization was done using blind envelopes."* No further detail about sequence generation methods.
Allocation concealment	Unclear risk	*"Randomization was done using blind envelopes."* Allocation concealment not explicitly stated by appeared likely to have occurred. No details provided regarding sequential opening.
Blinding – outcome assessment	Unclear risk	Not reported
Incomplete outcome data	High risk	*"Data from dropout patients were omitted. Missing values for patients not considered to be dropout patients were [imputed]."* Dropout reported (intervention n = 8, control n = 6). Numbers/reasons comparable between groups. Unclear how many participants were considered lost to follow-up.
Intention-to-treat analysis	High risk	Intention-to-treat not explicitly stated. Results appeared to be presented according to original treatment allocation, but dropouts were excluded from analyses.
Selective reporting	High risk	Not all outcomes specified in methods/trial registration are reported.
Other sources of bias	Low risk	No other risks identified.

Gordon 2002

Design	RCT – three arm, parallel groups. 1 group excluded from review due to unclear telehealth fidelity	
Protocol/trial registration	No / No	
Participants	n = 52 (38 male, 73%; 54 randomised, 2 not reported) in TexCR, n = 45 (34 male, 76%; 52 randomised, 7 not reported) in CBexCR. Age = 61 ± 10 y. *Inclusion:* Diagnosed CAD (MI, PCI, CABG, angina); low to mod recurrent event risk; ≥4 weeks post-hospitalisation; clinician approval to participate; 21-75 years; able to complete a maximal treadmill test; absence of non-cardiac life-threatening illness; absence of significant/prohibitive psychological illness; able to attend 3 exCR sessions per week CR; understands English. *Exclusion:* Exclusion criteria not explicitly documented.	
Treatments	<u>TexCR (intervention)</u> *ICT*: Telephone (exercise prescription, education). *Exercise*: 3 months. 2 centre-based exCR sessions (week 1/6). ≥3 sessions per week. 30-60 minutes. 60-85% HRpeak. Telephone calls (week 2/4/8/10) from nurse case manager to update exercise prescription. *Other*: Telephone calls (week 2/4/8/10) from nurse case manager to provide education and behaviour change counselling. <u>CBexCR (control)</u> *Exercise*: 3 months. 3 centre-based supervised exCR sessions per week. 30-60 min. 60-85% HRpeak. *Other*: Education and behaviour change counselling.	
Outcomes	<u>Primary</u>: Primary outcome not specified. <u>Secondary</u>: Exercise capacity ($\dot{V}O_2$peak), blood pressure, blood lipid concentrations, body mass, exercise adherence.	
Follow-up	Post-treatment (3 months).	
Country	USA	
Risk of Bias	<u>Judgement</u>	<u>Support for judgement</u>
Sequence generation	Unclear risk	*"…patients were randomized to 1 of the following 3 programs for 12 weeks:"* No further detail about sequence generation methods.
Allocation concealment	Unclear risk	Not reported.
Blinding – outcome assessment	Unclear risk	Not reported.
Incomplete outcome data	High risk	*"...142 (91.6%) underwent testing at baseline and again after 12 weeks of intervention.*" Dropout reported (intervention n = 2, control n = 7). Data presented for complete cases
Intention-to-treat analysis	High risk	Intention-to-treat not explicitly stated. Results appeared to be presented per-protocol.
Selective reporting	Low risk	All outcomes specified in methods are reported.
Other sources of bias	Low risk	No other risks identified.

Guiraud 2012

Design	RCT – two arm, parallel groups	
Protocol/trial registration	No / No	
Participants	n = 19 (17 male, 89%) in TexCR, n = 10 (7 male, 70%) in Usual Care. Age = 57 ± 12 y. *Inclusion:* Acute cardiac event; noncompliance with recommended physical activity; CR participation; computer at home. *Exclusion:* Unstable angina; uncontrolled hypertension; severe arrhythmia; neuro-orthopaedic disease affecting exercise capacity.	
Treatments	TexCR (intervention) *ICT*: Telephone (counselling and exercise feedback); accelerometer, web portal (exercise monitoring). *Exercise*: 2 months. Weekly upload of daily accelerometry data to web portal. Data retrospectively reviewed by kinesiologist. Bi-weekly telephone calls from kinesiologist to provide physical activity feedback. Exercise prescription details not reported. *Other*: Bi-weekly telephone calls from kinesiologist to provide counselling. Usual Care (control) 2 months. No detail provided.	
Outcomes	Primary: Physical activity duration and estimated energy expenditure. Secondary: No secondary outcomes specified or reported.	
Follow-up	Post-treatment (2 months).	
Country	France.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Unclear risk	*"...patients were randomly assigned to an intervention group (n=19) or a control group (n=10)."* No further detail about sequence generation methods.
Allocation concealment	Unclear risk	Not reported.
Blinding – outcome assessment	Unclear risk	Not reported, although it appeared physical activity was measured objectively using accelerometers.
Incomplete outcome data	Low risk	No attrition apparent.
Intention-to-treat analysis	Low risk	Intention-to-treat not explicitly stated but no attrition reported, and results appeared to be presented according to original treatment allocation.
Selective reporting	High risk	Not all outcomes specified in methods/trial registration are reported.
Other sources of bias	Low risk	No other risks identified.

Kraal 2014

Design	RCT – two arm, parallel groups.	
Protocol/trial registration	Yes / Yes	
Participants	n = 25 (22 male, 88%; 29 randomised, 4 not reported) in TexCR, n = 25 (21 male, 84%; 26 randomised, 1 not reported) in CBexCR. Age = 58 ± 8 y. *Inclusion:* MI, angina or revascularisation; low to moderate recurrent event risk; home internet and PC access *Exclusion:* Exclusion criteria not explicitly documented.	
Treatments	TexCR (intervention) *ICT*: Telephone (exercise prescription, behaviour change), biosensor, computer, website (exercise monitoring). *Exercise*: 3 months. 3 centre-based exCR visits to familiarise with biosensor, data upload, data review). ≥2 sessions per week. 45-60 minutes. 70-85% HRpeak. Weekly telephone calls from physical therapist to provide feedback on exercise frequency, duration and level of intensity. *Other*: Weekly telephone calls to provide behaviour change counselling. CBexCR (control) *Exercise*: 3 months. 3 centre-based supervised exCR sessions per week. 45-60 min. 70-85% HRpeak. *Other*: Education and behaviour change counselling.	
Outcomes	Primary: Exercise capacity ($\dot{V}O_2$peak), physical activity level. Secondary: Exercise adherence, HRQoL, clinical events.	
Follow-up	Post-treatment (3 months).	
Country	The Netherlands.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Low risk	*“"Allocation is based on randomization with variable block size (two or four), performed with dedicated computer software by a researcher (NP) who is not present at the time of allocation."*
Allocation concealment	Low risk	*"To conceal allocation, numbered and sealed opaque envelopes are opened between the baseline cardiopulmonary exercise test and the start of exercise training"*
Blinding – outcome assessment	Unclear risk	Not reported.
Incomplete outcome data	High risk	*“One patient in the CT group and one in the HT group were not able to perform an exercise test at 12 week…Three patients in the HT group dropped out…*” Data presented for complete cases
Intention-to-treat analysis	High risk	Intention-to-treat stated in the study protocol, but results appeared to be presented per-protocol.
Selective reporting	High risk	Not all outcomes specified in methods/study protocol are reported.
Other sources of bias	High risk	The HRQoL measure specified in the study protocol and this study report differ.

Lee 2013

Design	RCT – two arm, parallel groups	
Protocol/trial registration	No / No	
Participants	n = 30 (22 male, 73%) in TexCR, n = 30 (22 male, 73%) in Usual Care. Age = 56 ± 8 y. *Inclusion:* PCI following ACS; 18-80 y. *Exclusion:* Chronic stable angina pectoris; NYHA class III/IV, LVEF < 30%; chronic renal failure; inability to exercise.	
Treatments	TexCR (intervention) *ICT*: Telephone (counselling and exercise prescription), mobile phone, wireless heart rate monitor (exercise monitoring). *Exercise*: 3 months. 1-2 centre-based exCR sessions during intervention. 4-5 home-based exCR sessions per week with wireless remote heart rate monitoring (10 min warm-up, 30 min walking, 10 min cool-down). 40% HRR (0.5-1 months), 50% HRR (1-1.5 months), 60% HRR (1.5-2 months), 70% HRR (2-2.5 months), 80% HRR (2.5-3 months). Weekly telephone calls to revise exercise prescription. *Other*: Weekly telephone calls to provide counselling. Ordinary medical therapy. Usual Care (control) 3 months. Home-based exercise without participation in CR. Ordinary medical therapy.	
Outcomes	Primary: Exercise capacity (sub-maximal metabolic equivalents). Secondary: Exercise duration, sub-maximal rate-pressure product, sub-maximal perceived exertion, blood pressure, quality of life.	
Follow-up	Post-treatment (3 months).	
Country	Korea.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Unclear risk	*"Patients were randomly allocated to either the CR group or the usual care (UC) group."* No further detail about sequence generation methods.
Allocation concealment	Unclear risk	Not reported.
Blinding – outcome assessment	Unclear risk	Not reported.
Incomplete outcome data	High risk	*"Twenty six patients in the CR group and 29 patients in the UC group completed follow-up and were available for endpoint analysis."*
Intention-to-treat analysis	High risk	Intention-to-treat not explicitly stated. Results appeared to be presented per-protocol.
Selective reporting	Low risk	All outcomes specified in methods are reported.
Other sources of bias	Low risk	No other risks identified.

Maddison 2014

Design	RCT – two arm, parallel groups	
Protocol/trial registration	Yes / Yes	
Participants	n = 85 (69 male, 81%) in TexCR, n = 86 (70 male, 81%) in Usual Care. Age = 60 ± 9 y. *Inclusion:* Angina pectoris, MI or revascularisation (PCI, CABG/stent) within 3-24 months; clinically stable outpatients; internet access; able to exercise; read/write English. *Exclusion:* heart disease-related hospital admission within 6 weeks; terminal cancer; significant non-coronary exercise limitations.	
Treatments	TexCR (intervention) *ICT*: SMS (exercise prescription, behaviour change), website (exercise monitoring, behaviour change, education, social support). *Exercise*: 6 months. ≥ 30 min moderate to vigorous exercise on ≥ 5 days per week. Regular exercise prescription via SMS. *Other*: Behaviour change SMS (motivation, self-efficacy, social support) - 6 per week (1-3 months), 5 per week (3-4.5 months), 4 per week (4.5-6 months). Website featuring self-monitoring tools, video messages, lifestyle and CVD risk education, links to relevant organisations' websites. Access to usual care CR services (see Usual Care, below). Usual Care (control) 6 months. Optional access to usual care CR services including community CR education sessions, encouragement to be physical active and join a cardiac club.	
Outcomes	Primary: Exercise capacity ($\dot{V}O_2$peak). Secondary: Blood pressure, body composition, physical activity, health-related quality of life.	
Follow-up	Post-treatment (6 months).	
Country	New Zealand.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Low risk	*"On completion of the baseline assessment, eligible participants were randomly allocated at a 1:1 ratio to either intervention or control group by means of a central computerized service. Randomization was conducted using the minimization method…"*
Allocation concealment	Low risk	Central computer service use to ensure *"Allocation concealment was maintained up to the point of randomisation."*
Blinding – outcome assessment	Low risk	*"Outcome assessors were blinded to treatment allocation."*
Incomplete outcome data	Unclear risk	*"Multiple imputations method was applied to the missing data for the primary outcome only."* Missing secondary outcome data appeared likely due to LTFU/dropout reported in CONSORT flow diagram.
Intention-to-treat analysis	Low risk	*"Treatment evaluations were performed on the principle of intention to treat (ITT), using data collected from all randomized participants."*
Selective reporting	High risk	One secondary outcome specified in trial registration (6 minute walk test) not reported.
Other sources of bias	Low risk	No other risks identified.

Reid 2012a

Design	RCT – two arm, parallel groups	
Protocol/trial registration	No / Yes	
Participants	n = 115 (95 male, 83%) in TexCR, n = 108 (93 male, 86%) in Usual Care. Age = 56 ± 9 y. *Inclusion:* PCI following ACS; 28-80 y; not planning to enrol in CR; home internet access. *Exclusion:* CABG; ICD; NYHA class III/IV, no English, unable/unwilling to provide consent.	
Treatments	TexCR (intervention) *ICT*: Accelerometer, website, email (exercise prescription and monitoring, behaviour change, education).. *Exercise*: 12 months. Weeks 1-20 - daily website activity log, revision of exercise prescription after online tutorials (see Other, below). Weeks 21-56 = New exercise prescription every 6 weeks, sustained website access, exercise feedback based on patient data logging. Exercise prescription details not reported. *Other*: Weeks 1-20 - 5 online education/behaviour change tutorials (weeks 2/4/8/14/20, exercise planning, monitoring, goal setting, overcoming barriers, relapse prevention). Emails from exercise specialist between tutorials with motivational feedback Automated reminder/engagement emails, email question/answer service. Usual Care (control) 12 months. Physical activity guidance and a booklet provided by cardiologist.	
Outcomes	Primary: Physical activity. Secondary: Health-related quality of life, clinical events.	
Follow-up	Post-treatment (12 months).	
Country	Canada.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Low risk	*"Participants were randomized in a 1:1 ratio to CardioFit or usual care using a random sequence that was computer generated by a statistician in blocks of 4, 8 and 10."*
Allocation concealment	Low risk	*"Sequences were generated for Ottawa and London and placed in sealed, numbered envelopes to ensure that treatment allocation was concealed until after baseline data collection."* Sequential opening not explicitly stated by appeared likely.
Blinding – outcome assessment	Low risk	Baseline assessments were completed prior to randomisation. *"Research assistants, blinded to the participants' treatment allocation, conducted follow-up assessments."*
Incomplete outcome data	Low risk	*"Missing outcome values were replaced with multiple imputations after confirming that the data were missing at random."*
Intention-to-treat analysis	Low risk	Intention-to-treat not explicitly stated. Results appeared to be presented according to original treatment allocation.
Selective reporting	High risk	Not all outcomes specified in methods/trial registration are reported. Some outcomes not reported at all specified time points.
Other sources of bias	Low risk	No other risks identified.

Salvetti 2008

Design	RCT – two arm, parallel groups	
Protocol/trial registration	No / No	
Participants	n = 19 (14 male, 74%) in TexCR, n = 20 (15 male, 75%) in Usual Care. Age = 54 ± 8 y. *Inclusion:* < 70 y; resident in Sao Paulo; NYHA class I/II; maximal functional capacity > 6 MET; normal response to exercise testing; LVEF > 50%; absence of congestive heart failure, recurrent angina, complex ventricular arrhythmias, advanced CAD, antecedents of cardiac arrest or ≥ 2 MI. *Exclusion:* PVD; COPD; orthopaedic limitation; stroke; concurrent limiting non-cardiac illness; unable to attend 3 exCR sessions per week.	
Treatments	TexCR (intervention) *ICT*: Telephone (exercise monitoring and feedback). *Exercise*: 3 months. 2 initial supervised centre-based exCR sessions (60-80% peak HR). 3 home-based exCR sessions per week, stretching and walking (30 min, 60-80% peak HR). Bi-weekly telephone calls from doctor to monitor adherence and progress. Exercise log completed weekly, reviewed by doctor monthly. *Other*: Bi-weekly telephone calls from doctor to provide support. Usual Care (control) 3 months. Encouraged to increase physical activity.	
Outcomes	Primary: Exercise capacity ($\dot{V}O_2$peak). Secondary: Blood pressure, health-related quality of life, clinical events.	
Follow-up	Post-treatment (3 months).	
Country	Brazil.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Low risk	*"A researcher, who did not participate in this study, prepared the randomization schedule using a blocked format.*
Allocation concealment	Low risk	*"The resulting group assignments were then sealed in opaque envelopes that were opened after consent and baseline data were obtained."*
Blinding – outcome assessment	Unclear risk	Not reported.
Incomplete outcome data	Low risk	Treatment of missing data not explicitly specified but no reported attrition, and results appeared to include data from all randomised participants.
Intention-to-treat analysis	Unclear risk	Intention-to-treat not explicitly stated but no attrition reported. Results appeared to be presented according to original treatment allocation.
Selective reporting	Low risk	All outcomes specified in methods are reported.
Other sources of bias	Low risk	No other risks identified.

Varnfield 2014

Design	RCT – two arm, parallel groups	
Protocol/trial registration	No / Yes	
Participants	n = 60 (48 male, 80%) in TexCR, n = 60 (34 male, 57%) in CBexCR. Age = 56 ± 10 y. *Inclusion:* MI; referred for CR. *Exclusion:* Unable to participate in a self-management programme; no experience with or unable to operate a smartphone; unable to attend centre-based exCR; involved in another trial.	
Treatments	TexCR (intervention) *ICT*: Telephone (exercise and goal feedback), website, smartphone/apps, accelerometer, weigh scale, blood pressure monitor (exercise and health monitoring), SMS and pre-installed media (social support, education). *Exercise*: 1.5 months. ≥ 30 min moderate activity (mostly walking) most days per week. *Other*: Weekly telephone calls from mentors to provide feedback. Physical activity, blood pressure, body weight monitoring via smartphone apps. SMS and pre-installed media files provided social support and educational materials. CBexCR (active control) *Exercise*: 1.5 months supervised centre-based exCR 2 centre-based supervised exCR session per week (circuit-based aerobic and resistance exercise). RPE = 6-10 and 11-13. *Other*: 6 x weekly 1 hour educational sessions.	
Outcomes	Primary: Exercise uptake, adherence and completion. Secondary: Blood pressure, blood lipid/glucose concentrations, body composition, physical activity, clinical events.	
Follow-up	Post-treatment (1.5 months) and long-term follow-up (6 months post-randomisation).	
Country	Australia.	
Risk of Bias	Judgement	Support for judgement
Sequence generation	Low risk	*"Permuted block randomisation, by computer-generated random numbers with variable block sizes..."*
Allocation concealment	Low risk	*"using sequentially numbered opaque, sealed envelopes."*
Blinding – outcome assessment	High risk	*"We conducted an unblinded RCT...""*
Incomplete outcome data	Unclear risk	Methods for handling missing data vary across outcomes. *"Primary outcome measures 'uptake' and 'completion' were analysed on an intention-to-treat basis. 'Adherence' was only assessed in those undertook the programme." "Secondary analyses were conducted…without imputing for missing values."* Substantial and differential number/reasons for missing data, varies by outcome. Primary outcomes low risk of bias, secondary outcomes high risk of bias.
Intention-to-treat analysis	Unclear risk	As above, ITT analysis for exercise uptake and completion. Per protocol analysis for remaining outcomes.
Selective reporting	High risk	Not all outcomes specified in methods/trial registration are reported. Some outcomes not reported at all specified time points.
Other sources of bias	High risk	A priori primary outcome changed due to low recruitment.

Zutz 2007

Design	RCT – two arm, parallel groups, + non-randomised historic control arm.
Protocol/trial registration	No / No
Participants	n = 8 (7 male, 80%) in TexCR, n = 7 (5 male, 71%) in Usual Care. Age = 59 ± 9 y. *Inclusion:* MI/PCI/CABG; referral to centre-based CR; live < 60 km from CR centre; no prior CR; fluent in English. *Exclusion:* Depression; smoking; >2 mm ST depression or significant arrhythmia during exercise test; uncontrolled diabetes.
Treatments	TexCR (intervention) *ICT*: laptop computer, heart rate and blood pressure monitors (exercise monitoring), online chat (exercise prescription and feedback, education), website (task list) *Exercise*: 3 months. Exercise heart rate data uploaded ≥ 2 twice per week. Pre- and post-exercise blood pressure and blood glucose concentration uploaded periodically. Exercise prescription details not reported. Scheduled online chat with exercise specialist (3 x 1 h) to provide exercise prescription and progress feedback. *Other*: Scheduled online chat with dietician and nurse (3 x 1 h sessions each) to provide dietary recommendations and risk factor management. Monthly ask-an-expert group online chat. Website with weekly task list. Usual Care (control) 3 months. No contact between researchers or centre-based exCR and participants. Participants underwent 12 week centre-based exCR after completing the control treatment. Matched historic CBexCR (control) Hospital-based exCR. Matched to intervention (2:1) based on age, gender, and disease presentation. Ineligible for inclusion in this review due to non-randomised sampling method.
Outcomes	Primary: Exercise capacity (estimated MET_{max}) Secondary: Blood pressure, blood lipid concentrations, body composition, physical activity.
Follow-up	Post-treatment (3 months).
Country	Canada.

Risk of Bias	Judgement	Support for judgement
Sequence generation	Unclear risk	*"…randomized to either the internet-based CRP (vCRP) or to the observational control group"*
Allocation concealment	Unclear risk	Not reported.
Blinding – outcome assessment	Unclear risk	Not reported.
Incomplete outcome data	High risk	Drop-outs reported. No method for treating missing data specified.
Intention-to-treat analysis	High risk	Intention-to-treat not explicitly stated. Results appeared to be presented excluding reported dropouts.
Selective reporting	Low risk	All outcomes specified in methods are reported.
Other sources of bias	Low risk	No other risks identified.

ACS = Acute coronary syndrome
CABG = Coronary artery bypass graft
CAD = Coronary artery disease
CBexCR = Centre-based exercise-based cardiac rehabilitations
COPD = Chronic obstructive pulmonary disease
CR = Cardiac rehabilitation
exCR = Exercise-based cardiac rehabilitation
GXT = Graded exercise test
HR = Heart rate
HRpeak – Peak heart rate
HRR = Heart rate reserve (i.e. level of exercise intensity)
ICD = Implantable cardioverter defibrillator
ICT = Information and communication technologies (i.e. telehealth tools)
ITT = Intention-to-treat analysis
LVEF = Left ventricular ejection fraction
MET = Metabolic equivalent of task (MET_{max} = maximal metabolic equivalent of task, i.e. workload)
MI = Myocardial infraction
NYHA = New York Heart Association functional classification
PCI = Percutaneous coronary intervention
PVD = Peripheral vascular disease
RCT = Randomised controlled trial
SMS = Short message service
TexCR = Telehealth exercise-based cardiac rehabilitation
$\dot{V}O_2peak$ = Peak oxygen consumption

Online Supplement 3. Characteristics of Excluded Studies [*ordered by study ID*]

Study	Reason For Exclusion
Ades 2000[1]	Non-randomised design
Arthur 2011[2]	Abstract or dissertation
Barnason 2003[3]	No telehealth exCR
Barnason 2013[4]	Abstract or dissertation
Beatty 2013[5]	Systematic review and/or meta-analysis
Bidargaddi 2008[6]	No outcome data
Blair 2011[7]	Systematic review and/or meta-analysis
Bosak 2007[8]	Abstract or dissertation
Brennan 2001[9]	No outcome data
Brough 2014[10]	Non-randomised design
Brubaker 2000[11]	No telehealth exCR
Carr 2008[12]	Ineligible participant group
Chow 2012[13]	No outcome data
Dalal 2007[14]	No telehealth exCR
Dalleck 2011[15]	Non-randomised design
Dantas 2002[16]	No telehealth exCR
DeBusk 1994[17]	No telehealth exCR
Dennis 2013[18]	Systematic review and/or meta-analysis
Devi[19]	No telehealth exCR
Fletcher 1984[20]	Ineligible or absent comparison group
Frederix 2011[21]	Ineligible or absent comparison group
Frederix 2012[22]	Abstract or dissertation
Frederix 2013b[23]	Abstract or dissertation
Frederix 2013c[24]	Abstract or dissertation
Frederix 2014[25]	Abstract or dissertation
Frederix 2015[26]	No outcome data
Friedman 1998[27]	Ineligible participant group
Giallauria 2006[28]	Non-randomised design
Hanssen 2007a[29]	No telehealth exCR
Hanssen 2007b[30]	Abstract or dissertation
Hanssen 2009[31]	No telehealth exCR
Harris 2003[32]	No telehealth exCR
Holmes-Rovner 2008[33]	No telehealth exCR
Honeyman 2014[34]	Systematic review and/or meta-analysis
Huang 2014[35]	Systematic review and/or meta-analysis
Hwang 2011[36]	Abstract or dissertation
Jiang 2013[37]	Abstract or dissertation
Jolly 2007[38]	No telehealth exCR
Kortke 2006[39]	Ineligible participant group
Korzeniowska-Kubacka 2011[40]	Non-randomised design
Korzeniowska-Kubacka 2014[41]	Non-randomised design
Kotb 2014[42]	Systematic review and/or meta-analysis
Kouidi 2006[43]	Ineligible or absent comparison group
Kraal 2013[44]	No outcome data

Lear 2001[45]	No telehealth exCR
Lear 2002[46]	No telehealth exCR
Lear 2003[47]	No telehealth exCR
Lear 2006[48]	No telehealth exCR
Lear 2013[49]	Abstract or dissertation
Leemrijse 2012[50]	No telehealth exCR
Lewes 1967[51]	No telehealth exCR
Lieber 2012[52]	Ineligible participant group
Lindsay 2008[53]	No telehealth exCR
Lombard 1995[54]	Abstract or dissertation
Maddison 2011[55]	No outcome data
Mayer-Berger 2014[56]	No telehealth exCR
Miller 1984[57]	No telehealth exCR
Mittag 2006[58]	No telehealth exCR
Moore 2007[59]	Non-randomised design
Najafi 2015[60]	Non-randomised design
Naser 2008[61]	No telehealth exCR
Neubeck 2009[62]	Systematic review and/or meta-analysis
Neubeck 2011[63]	Abstract or dissertation
Nolan 2011[64]	No telehealth exCR
Ozahowski 1986[65]	No outcome data
Patja 2012[66]	No telehealth exCR
Phillips 2014[67]	Systematic review and/or meta-analysis
Pietrzak 2014[68]	Systematic review and/or meta-analysis
Pinto 2013[69]	No telehealth exCR
Piotrowicz 2011[70]	Abstract or dissertation
Redfern 2009[71]	No telehealth exCR
Redfern 2010[72]	No telehealth exCR
Reid 2012b[73]	No telehealth exCR
Richardson 2010[74]	Ineligible participant group
Sanderson 1990[75]	Abstract or dissertation
Southard 2003[76]	No telehealth exCR
Sparks 1998[77]	No outcome data
Squires 1991[78]	Ineligible or absent comparison group
Tirimacco 2014[79]	Abstract or dissertation
Turkstra 2013[80]	No telehealth exCR
Ueshima 2002[81]	Ineligible or absent comparison group
Vale 2005[82]	Systematic review and/or meta-analysis
Varnfield 2011[83]	No outcome data
Varnfield 2012[84]	Abstract or dissertation
Vernooij 2012[85]	Ineligible participant group
Widmer 2014[86]	Abstract or dissertation
Wister 2007[87]	No telehealth exCR
Worringham 2011[88]	Ineligible or absent comparison group
Wu 2006[89]	No telehealth exCR

exCR = exercise-based cardiac rehabilitation.

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Online Supplement 4. Risk of bias summary: review authors' judgements about each risk of bias item for included studies.

	Sequence generation	Allocation concealment	Blinding of outcome assessment	Incomplete outcome data	Intention-to-treat analysis	Selective outcome reporting	Other Bias
Arthur 2002	↓	↓	?	?	↓	?	?
Frederix 2013a	?	?	?	↑	↑	↓	↓
Gordon 2002	?	?	?	↑	↑	↓	↓
Guiraud 2012	?	?	?	↓	↑	↑	↓
Kraal 2014	↓	↓	?	↑	↑	↑	↑
Lee 2013	?	?	?	↑	↑	↓	↓
Maddison 2014	↓	↓	↓	?	↓	↑	↓
Reid 2012a	↓	↓	↓	↓	↓	↑	↓
Salvetti 2008	↓	↓	?	↓	?	↓	↓
Varnfield 2014	↓	↓	↑	?	?	↑	?
Zutz 2007	?	?	?	↑	↑	↓	↓

↓ = low risk of bias; ? = unclear risk of bias; ↑ = high risk of bias

Online Supplement 5. Additional Outcome Data

Summary of additional body composition data at post-intervention follow-up.

Outcome Measure	Group Mean	Difference (95% CI)	Findings
Maddison 2014			
Body mass kg			
TexCR	84.36 ± 13.65	0.65 (-4.18 to 5.48)	TexCR = UC
UC	83.71 ± 16.30	P = .79[A]	
Waist circ. cm			
TexCR	100.70 ± 10.43	0.49 (-3.32 to 4.30)	TexCR = UC
UC	100.21 ± 13.13	P = .80[A]	
Hip circ. cm			
TexCR	105.30 ± 9.37	0.55 (-2.38 to 3.48)	TexCR = UC
UC	104.75 ± 8.90	P = .71[A]	
Waist:hip ratio			
TexCR	0.96 ± 0.05	0.01 (-0.01 to 0.03)	TexCR = UC
UC	0.95 ± 0.07	P = .31[A]	
Zutz 2007			
Waist circ. cm			
TexCR	84.70 ± 6.40	-4.1 (-13.56 to 5.36)	TexCR = UC
UC	88.80 ± 9.20	P = .36[A]	
Arthur 2002			
Waist:hip ratio			
TexCR	0.90 ± 0.06	-0.02 (-0.03 to – 0.01)	TexCR < CBexCR
CBexCR	0.92 ± 0.07	P = .01	
Gordon 2002			
ΔBody mass kg[B]			
TexCR	-1.00 ± 2.31	-0.14 (-1.05 to 0.77)	TexCR = CBexCR
CBexCR	-0.86 ± 2.18	P = .77[A]	
Varnfield 2014			
Body mass kg			
TexCR	89.10 ± 21.10	0.70 (-8.42 to 9.82)	TexCR = CBexCR
CBexCR	88.40 ± 11.30	P = .88[A]	
Waist circ. cm			
TexCR	101.10 ± 14.40	0.40 (-5.80 to 6.60)	TexCR = CBexCR
CBexCR	100.70 ± 8.70	P =.90[A]	

TexCR = telehealth exercise-based cardiac rehabilitation; CBexCR = centre-based exercise-based cardiac rehabilitation; UC = Usual care

[A] Hypothesis test not presented in study report; manually calculated by review authors following accepted methods.[90]

[B] Gordon 2002 data presented as change from baseline.

Summary of blood glucose control data at post-intervention follow-up.

Outcome Measure	Group Mean	Difference (95% CI)	Findings
Frederix 2013a			
Blood glucose mmol·L^{-1}			
TexCR	5.78 ± 0.44	-0.11 (-0.43 to 0.20)	TexCR = CBexCR
CBexCR	5.89 ± 0.78	P = .44	
HbA1c %			
TexCR	0.90 ± 0.06	-0.10 (-0.35 to 0.15)	TexCR = CBexCR
CBexCR	0.92 ± 0.07	P = .06	

TexCR = telehealth exercise-based cardiac rehabilitation; CBexCR = centre-based exercise-based cardiac rehabilitation.

Summary of clinical event counts at post-intervention follow-up.

Outcome Measure	Event Count (%)	Difference (%)
Maddison 2014		
Cardiac event		
TexCR	4/85 (4.7%)	1.2
UC	3/86 (3.5%)	
Revascularisation		
TexCR	2/85 (2.4%)	2.4
UC	0/86 (0.0%)	
Rehospitalisation		
TexCR	11/85 (12.9%)	-5.7
UC	16/86 (18.6%)	
Reid 2012a		
Mortality		
TexCR	0/115 (0.0%)	-1.9
UC	2/108 (1.9%)	
Revascularisation		
TexCR	0/115 (0.0%)	-0.9
UC	1/108 (0.9%)	
Revascularisation		
TexCR	4/115 (3.5%)	-2.1
UC	6/108 (5.6%)	
Salvetti 2008		
Coronary event		
TexCR	0/19 (0.0%)	0.0
UC	0/20 (0.0%)	
Frederix 2013		
Rehospitalisation		
TexCR	4/32 (12.5%)	-14.0
CBexCR	9/34 (26.5%)	
Kraal 2014		
Total adverse events		
TexCR	0/25 (0.0%)	0.0
CBexCR	0/25 (0.0%)	
Varnfield 2014		
Revascularisation		
TexCR vs.	1/60 (1.7%)	0.0%
CBexCR	1/60 (1.7%)	

TexCR = telehealth exercise-based cardiac rehabilitation; CBexCR = centre-based exercise-based cardiac rehabilitation; UC = Usual care

[A] Summary conclusions have not been drawn due to the small numbers of reported events.