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| * **Supplemental Digital Content 1. Description of Included Studies**
 |
| * **Author**
* **Study Design**
* **PR or CR**
 | * **Sample Size**
* **Patient Type**
 | * **Subjects, n;**
* **Male/Female; (Mean Age)**
 | * **Follow-up Duration; Patients at Completion of Study**
 | * **QoL Instruments**
 | * **Other Outcomes**
 | * **Interventions**
 | * **Main Conclusions**
 |
| * Nilesh et al (2013)
* Pros
* PR
 | * n=60
* COPD
 | * 43 Male
* 17 Female
* (68yr)
 | * 4 wk
 | * 1. CRQ
 | * - 6MWD
* - Borg scale
 | * PR
 | * PR helps in both subjective and objective improvement in COPD patients
 |
| * Chair et al (2013)
* RCT
* CR
 | * n=146
* - Control: n=73
* - Interview: n=73
 | * 20/53 (66yr)
* 26/47 (66yr)
 | * 12 mo
* 64
* 52
 | * 1. SF-36
 | * - BP
* - BMI
* - Cholesterol
* - Medication compliance
 | * 6-mo CR with motivational interviews intervention
 | * No change in clinical outcomes between patients who received motivational interviews
 |
| * Stauber et al (2013)
* Comp
* CR
 | * n=589
* - PAD: n=69
* - CAD: n=520
 | * 45/24 (68yr)
* 421/79 (81yr)
 |  | * 1. SF-36
* 2. GMS
* 3. HADS
 | * - BMI
* - Predicted exercise capacity
* - Walking distance
 | * 12-wk CR
 | * Decrease of pre- to post-rehabilitation in depression symptoms in CAD but not PAD; decrease in both groups for anxiety
 |
| * Berton et al (2013)
* Retro
* PR
 | * n=102
* COPD
* FFM
* - Depleted: n=31
* -Nondepleted: n=31
 | * 65/37
* 10/21
* 10/21
 | * 12 wk
 | * SGRQ
 | * - 6MWD
* - FFM
* - FEV1
* - FVC
 | * PR
 | * FFM-depleted improved with HRQoL more than FFM-nondepleted
 |
| * Janssen et al (2013)
* Pros
* CR
 | * n=158
* CAD
 | * 127/31 (58yr)
 | * 12 wk
 | * 1. Brief Illness Perception Questionnaire
* 2. MacNew
 |  | * 3-mo CR
 | * Illness perception increased significantly between the beginning of treatment (T0)and the end of treatment (T1); significant increase in QoL
 |
| * Gurgun et al (2013)
* RCT
* PR
 | * n=46
* COPD
* - Standard PR: n=15
* - PR+nutritional support: n=15
* Control: n=15
 | * 15/0 (66yr)
* 13/2 (66yr)
* 16/0 (67yr)
 | * 8 wk
 | 1. Medical Research Council (MRC) questionnaire* 2. Borg scale
* 3. SGRQ
* 4. HADS
 | * - BMI
* - 6MWD
* - ISWT
* - FFM
 | * Patients divided between usual care; standard PR; and PR with nutritional support
 | * No significant change between groups in SGRQ; with PRNS and PR there was a significant increase in BMI
 |
| * Sagar et al (2012)
* Comp
* CR
 | * Post-CABG
* - CR: n=15
* - Home-based: n=15
 | * (59yr)
* (58yr)
 | * 4 wk
 | * 1. SF-36
 | * - Heart rate
* - 6MWD
 | * - CR
* - Home-based CR
 | * Pre to postintervention there was a significant increase in exercise capacity; however, between groups there was no significant difference in SF-36 domain scores
 |
| * Yoshimi et al (2012)
* Retro
* PR
 | * n=37
* COPD
 | * (68yr)
 | * 6 wk; 31
 | * 1. SGRQ
 | * - 6MWD
* - PI max
* - PE max
* - Respiratory muscle strength
* - Expiratory flow (EF)
 | * PR
 |  |
| * Dodd et al (2012)
* Pros
* PR
 | * n=118
* COPD
 | * 60/58 (73yr)
 | * 8 wk
* T3: 6 mo
 | * 1. CAT
* 2. CRQ-SR
 | * ISW
 | * PR testing new measure for the CAT
 | * Significant change in CAT at end of PR and CRQ-SR all domains; to T 3 there was less significant change in domains
 |
| * Shah et al (2012)
* Pros
* PR
 | * n=30
* Chronic respiratory disease
 | * 24/6 (56yr)
 | * 8 wk
 | * 1. CRQ
 | * 6MWD
 | * PR
 | * Significant change in 6MWD and QoL
 |
| * Ringbaek et al (2012)
* Pros
* PR
 | * n=90
* COPD
 | * 32/68 (69yr)
 | * 7 wk
 | * 1. CAT
* 2. SGRQ
* 3. CCQ
 | * - FEV1
* - BMI
 | * PR
 | * CAT and CCQ easier and quicker to administer
 |
| * Bratas et al (2012)
* Pros
* PR
 | * n=161
* COPD
 | * 79/82 (65yr)
 | * T2=4 wk; 136
* T3=6 mo; 111
 | * 1. SGRQ
* 2. HADS
 | * Spirometry tests
 | * PR
 | * T1 to T2: significant difference; T2 to T3: decrease in significance; T1 to T3: no significant change
 |
| * Puhan et al (2012)
* RCT
* PR
 | * n=36
* COPD
* - Early PR: n=19
* - Late PR: n=17
 | * 12/7 (67yr)
* 9/8 (66yr)
 | * 12 wk
* 15
* 13
 | * 1. CRQ
* 2. MRC
* 3. Feeling Thermometer
 | * FEV 1
 | * PR
* Early PR group started at 2 wk from exacerbation;
* late PR group started after 6 mo from exacerbation
 | * CRQ dyspnea
* Early showed a significant change; late, showed no significant change; no difference in exacerbations
 |
| * van Gestel et al (2012)
* RCT
* PR
 | * n=40
* COPD
* - Respiratory feedback training: n=20
* -Control: n=20
 | * RBF: 9/11 (66yr)
* Control: 8/12 (66yr)
 | * 4 wk; 40
 | * 1. CRQ
 | * - HRV
* - Spirometry
* - Whole body plethysmography
* - Diffusion capacity
* - 6MWD
 | * PR with controlled breathing training
 | * Patients had difficulty with training so it was difficult to ascertain if intervention caused significant changes
 |
| * Mosayebi et al (2011)
* Pros
* CR
 | * n=89
* CABG
* - CR: n=40
* - No CR: n=40
 | * 25/15 (62yr)
* 25/15 (64yr)
 | * 10 wk & 2 yr
 | * SF-36
 | * - Cardiac severity symptoms
* - NYHA questionnaire
 | * CR
 | * No significant difference in NHYA class between groups in general health, physical function and mental health pre- to post- testing
 |
| * Beauchamp et al (2010)
* Prospective
* PR
 | * n=38
* - COPD
* - All in PR
 | * 17/12 (69yr)
 | * 6 wk; 29
 | * CRQ
 | * - 6MWD
* - ABC scale
* - TUG
* - Berg Balance Scale
 | * PR with balance exercises to prevent falls
 | * There was a significant increase in 6MWD but no significant difference in balance tests
 |
| * Yohannes et al (2010)
* Pros
* CR
 | * n=189
* Post-MI
 | * 76/113 (61yr)
 | * 6 wk; 147
* 12 mo; 105
 | * 1. HADS
* 2. MacNew
 | * Total daily energy expenditure
 | * CR 2 times/wk for 6 wk
 | * The dropouts in this study were mainly young females
 |
| * Beckie et al (2010)
* RCT
* CR
 | * n=252
* - Tailored CR (n=141)
* - Traditional CR (n=111)
 | * Women only (63yr)
* Women only (64yr)
 | * 13 wk; 236 (137/99)
* 37 wk; 225 (133/92)
 | * 1. MDT questionnaire, 2. SASS
 | * - BP
* - BMI
* - Body fat composition
* - Lipid profiles
* - Serum glucose
* - Bruce protocol for exercise tolerance
* - Urine continence
* - Exercise attendance
 | * A tailored CR program that included motivational interviewing guided by the transtheoretical model of behavioral change
 | * A tailored CR intervention designed for women improved global QoL
 |
| * Izawa et al (2010)
* Pros
* CR
 | * n=442
* - Middle-aged CR group: n=242
* - Older aged CR group; n=200
 | * 203/39 (55yr)
* 164/36 (71yr)
 | * 3 mo
 | * 1. SEPA
* 2. SF-36
 | * - BMI- Peak ; index of exercise capacity
* - Handgrip strength
* - Knee extension muscle strength
* - Assessment of left ventricular ejection fraction by echocardiography
 | * A customized exercise-based supervised phase 2 CR outpatient program.
 | * There was a greater improvement from an exercise-based, supervised recovery-phase 2 CR outpatient program in middle-aged vs older patients
 |
| * Fast et al (2009)
* Pros
* CR
 | * 42 pairs of patients
* and spouses
 | * 30/12 (63yr)
* 30/12 (63)
 | * 6 wk
* No dropouts
 | * SF-36
 |  | * Phase 2 CR program
 | * Improvement of patient QoL was mirrored by spouse viewpoint of patient QoL
 |
| * Jones et al (2009)
* Retro
* PR
 | * n=480
* PR patients with PTSD: n=100
 | * 65/35 (68yr)
 | * 7-9 wk; 70
 | * 1. CRQ,
* 2. SF-12
* 3. HADS
* 4. PDS
* 5. IES-R
 | * Smoking status
 | * PR
 | * Post-traumatic stress disorder was present in 8% of COPD patients referred for PR
 |
| McGrady et al (2009) Pros* CR
 | * CR patients: n=380
 | * 241/139 (61yr)
 | * 12 wk; 190
 | * 1. Beck
* 2. SF-36
 | * - Height
* - Weight
* - BMI
* - Abdominal girth
* - Serum lipid profile
* - Dietary habits via the Diet Habit Survey
* - 12MWT
 | * CR
 | * Assessment of psychological distress early in CR showed that dropouts had higher depression and anxiety scores and lower QoL
 |
| * aMcKee et al (2009)
* Pros
* CR
 | * n=329
* CR patients
 | * NR
 | * 6 wk; 187
 | * SF-36
 |  |  |  |
| * aRiaz et al (2009)
* Pros
* CR
 | * n=60
* PR patients
 | * NR
 | * 4 wk; 49
 | * SF-36
 |  |  |  |
| * Bailey et al (2008)
* Retro
* PR
 | * n=166
* PR patients
 | * 63/76 (68yr)
 | * 8 wk; 139
 | * 1. SF-36
* 2. UCSD-SOB
 | * - 6MWT
* - BMI
* - FVC
* - FEV1
 | * PR: 28 sessions over 8 wk
 | * PR has a positive impact on 6MWT distance and perceived QoL in individuals with COPD; however, 6MWT results and perceived QoL had no relationship
 |
| * Jeger et al (2008)
* Pros
* CR
 | * n=99
* PR patients with PAD
 | * 87/12 (66yr)
 | * 3-18 mo
 | * PLC
 | * - Reason for CR
* - Cardiovascular risk factors
* - Medications
* - Left ventricular ejection fraction
* - Symptom-limited cycle exercise test
 | * Outpatient CR
 | * Patients with PAD undergoing CR have a similar benefit; however, they have higher dropout rates
 |
| * aMaes et al (2008)
* Pro
* CR
 | * n=6749
* CR patients
 | * 5079/1670
 | * T2; 1654
 | * MacNew
 |  |  |  |
| * Maltais et al (2008)
* RCT
* PR
 | * n=252
* - PR patients (n=126)
* - Home-based PR (n=126)
 | * 72/54(66yr)
* 68/58(66yr)
 | * 3 mo;
* 114/119
* 1 yr;
* 109/107
 | * 1. CRQ
* 2. SGRQ
 | * - Pulmonary function test
* - Exercise testing
* - Weekly for the 8-wk exercise program and monthly diary cards for the remainder of the study
 | * Standard care: outpatient hospital-based program;
* self-monitored, home-based rehabilitation.
 | * Home rehabilitation is a useful, equivalent alternative to outpatient rehabilitation in patients with COPD
 |
| * Benzer et al (2007)
* Comp
* CR
 | * CR exercise-based inpatients: n=62
* Exercise-based CR outpatient: n= 87
* Usual care-CR n=67
 | * 53/9 (59yr)
* 76/11 (50yr)
* 41/26 (61yr)
 | * 1 mo & 3 mo
 | * 1. MacNew
* 2. HADS
 | * Routine clinical data
 | * Exercise-based CR
 | * After 1 mo, significant improvements were achieved in patients attending inpatient as well as outpatient exercise-based CR when compared to no exercise-based CR
 |
| * Gunstad et al (2007)
* Retro
* CR
 | * CR patients; n=388
 | * 272/116 (67yr)
 | * 12 wk
 | * SF-36
 | * Functional work capacity
 | * Phase 2 CR
 | * CR participants meeting criteria for class II/III obesity (BMI >35 kg/m2) exhibit lower functional exercise capacity at both baseline and completion of CR
 |
| * Haugen et al (2007)
* Comp
* PR
 | * -Warm climate
* - Cold climate;
* n=104 (65/39)
 | * Warm: 37/23 (61y)
* Cold: 24/12 (59yr)
 | * 4 wk; 60/36
 | * 1. SGRQ
* 2. HADS
 | * - 6MWT
* - Pulmonary function tests
* - Data on exacerbations, hospitalizations and physician visits
 | * PR in Spain-warm climate; PR in Norway-cold climate
 | * No significant long-term differences for improvement in QoL was demonstrated after PR for COPD in a subtropical vs a temperate climate
 |
| * Hevey et al (2007)
* Comp
* CR
 | * - CR+CBT; n=185
* - CR only; n=131
 | * 143/42 (62yr)
* 104/27 (62yr)
 |  | * 1. HADS
* 2. HCS
* 2. QLI
* 3. CV-III
 | * Duke Activity Status Index
 | * Multidisciplinary CR
 | * Changes in QoL were significantly related to the initial levels of distress found in cardiac patients regardless of CR attendance.
 |
| * Lotshaw et al (2007)
* Retro
* PR
 | * - Water-based PR patients; n=20
* - Land-based PR patients; n=20
 | * 8/12 (65yr)
* 9/11 (71yr)
 |  | * SF-36
 | * - 6MWT
* - 6 repetition maximum strength test
 | * Multifaceted PR with a water-based exercise program; multifaceted PR program with a land-based exercise program
 | * Both groups improved in all outcome measurements and there was no difference found in the improvements between the land-based or water-based groups
 |
| * Mandel et al (2007)
* RCT
* CR
 | * - CR alone; n=33
* - CR+music therapy; n=35
 | * 17/16 (64yr)
* 17/18 (65yr)
 | * 1 mo; 18/31
* 4 mo; 6/26
* 10 mo; 5/26
 | * 1. STAI-T
* 2. CES-D
* 3. BSI
* 4. SF-36
 | * - Pre-exercise blood pressure
* - Comorbid medical conditions
* - Medication usage
* - Exercise capacity
* - Weight
* - Diet
* - Smoking behavior
 | * CR
 | * Findings suggested that some health-related outcomes may be affected positively by participation in music therapy in addition to CR.
 |
| * Mildestvedt et al (2007)
* Pros
* CR
 | * Patients; n=217
 | * 176/41 (54.9yr)
 | * 6 mo; 181
* 24 mo; 177
 | * 1. Treatment Self-Regulation Questionnaire
* 2. ADI
* 3. GE
* 4. Physical activity measure
 | * - Household income
* - Smoking status
* - Disease severity
 | * 4-wk CR program
 | * Autonomous self-regulation was lowest amongst smokers and female participants; participants with high scores of emotional distress predicted lower motivation with all measures; there was no association between socioeconomic status and ability to make lifestyle changes
 |
| * Paz-Diaz et al (2007)
* Pros
* PR
 | * n=24
* - Control, n=14
* - PR, n=10
 | * Control: 12/2 (62yr)
* PR: 6/4 (67yr)
 | * 2 mo
* No loss to followup
 | * 1. Beck
* 2. STAI
* 3. MRC
* 4. SGRQ
 | * Pulmonary function testing
 | * Exercise PR
 | * In patients with severe COPD, PR induced important changes in depression and anxiety independent of changes in dyspnea and QoL
 |
| * aPuhan et al (2007)
* Retro
* PR
 | * PR patients; n=281
 | * 104/73 (69yr)
 | * 12 wk; 177 (86/91)
 | * 1. CRQ-IA,
* 2. CRQ-SA,
* 3. SGRQ
* 4. SF-36
* 5. FT
* 6. SG
* 7. Health Utilities Index
 |  | * PR
 | * Disease-specific measures such as the CRQ and SGRQ regarding dyspnea are more responsive than the generic HRQoL tools
 |
| * Sanderson et al (2007)
* Retro
* CR
 | * CR patients; n=616
 | * 437/179 (62yr)
 | * 3-4 mo
 | * SF-36
 | * - Risk factors such as diabetes, hypertension and dyslipidemia
* -Smoking
* - Obesity based on BMI
* - Physical activity pattern
 | * CR
 | * The degree of improvement from CR was less for black vs white patients
 |
| * Vizza et al (2007)
* Pros
* CR
 | * CR patients; n=214
 | * 88/88
 | * 12 wk (T1); 176
* 1 yr (T2)
 | * 1. CES-D,
* 2. PSS
* 3. Cook-Medley Hostility scale
* 4. MCS - SF-36
 | * - Blood samples were taken after overnight fast:
* ⦁ HDL cholesterol
* ⦁ Total cholesterol
* ⦁ Triglycerides
* - BMI
* - General endurance
 | * The Ornish Program for Reversing Heart Disease
 | * A comprehensive lifestyle intervention can reduce multiple psychometric risk factors and produced clinically relevant improvement in measures of depression, stress and mental health
 |
| * Yohannes et al (2007)
* Pros
* CR
 | * CR patients with a diagnosis of myocardial infarction; n=189
 | * 129/60 (61.4yr)
 | * 6 wk; 42
 | * 1. QoL after Myocardial Infarction Questionnaire
* 2. IPQ
* 3. HADS
 |  | * CR with 12 exercise sessions and 6 interactive lectures from experts in the field.
 | * Female patients are more likely to dropout of CR than men
 |
| * Aldana et al (2006)
* Comp
* CR
 | * - Ornish program; 28
* - CR patients; n=28
* - Usual care; n=28
 | * 24/4 (56.65yr)
* 20/8 (59.99yr)
* 25/3 (58.75yr)
 | * 3/6 mo; 25/19
 | * 1. SF-36
* 2. CES-D
* 3. STAI
 | * Cook-Medley Hostility Scale
 | * Control group included standard care which included usually scheduled outpatient visits; CR patients engaged in supervised classes 2 times/wk for 1 hr; Ornish Program included 3 stages with intensive lifestyle changes.
 | * Ornish program participants demonstrated significant improvements in all outcome measures
 |
| * Alexander et al (2006)
* Retro
* CR
 | * CR patients; n=153
 | * 114/39 (69yr)
 | * 3 mo; 152
* 1 yr; 94
 | * SF-36
 |  | * CR program which consisted of monitored aerobic exercise and resistance training.
 | * Significant improvements in QoL short-term and long-term regardless of patient adherence rates
 |
| * Aude et al (2006)
* Retro
* CR
 | * Rural CR patients; n=121
 | * 83/38 (65yr)
 | * Post-CR
 | * SF-36
 |  | * CR in a rural setting
 | * Participation in rural CR programs may improve patient perceptions of QoL and health
 |
| * aBelza et al (2005)
* Pros
* PR
 | * Male PR patients; n=58
 | * 58 (66yr)
 | * 8 wk; 58
 | * 1. SOLDQ
* 2. SF-36
* 3. PFSDQ
* 4. MAF
 |  |  |  |
| * Chan et al (2005)45
* Pros
* CR
 | * CR patients; n=182
 | * 100/45 (62.72yr)
 | * 6 mo; 145
 | * SF-36
 |  | * 7-wk phase 2 CR program; 2 hr/wk with an exercise and an education component.
 | * Improvement in perceived QoL was evident over 6-mo
 |
| * aLeal et al (2005)
* Pros
* CR
 | * CR patients
* n=150
 | * 127/23 (59yr)
 | * 2 mo; 48
 | * 1. MacNew
* 2. HADS
* 3. SF-36
 |  |  |  |
| * aPuhan et al (2005)
* Pros
* PR
 | * Pre- and post-PR;
* n=84
 | * 43/38 (67yr)
 | * 12 wk; 81
 | * 1. Feeling Thermometer
* 2. Standard Gamble
 |  |  |  |
| * Ries et al (2005)
* Pros
* PR
 | * Patients with
* severe emphysema;
* n=1218
 | * 746/472 (67.1yr)
 | * 6-10 wk; 1218
 | * 1. SGRQ
* 2. SF-36
* 3. UCSD-SOB
* 4. QWB
 | * - 6MWT
* - Borg scale for exercise
* - Pulmonary function tests
* - Oxygen flow
 | * National Emphysema Treatment Trial; PR
 | * The NETT experience demonstrated the effectiveness of PR in patients with severe emphysema
 |
| * Verrill et al (2005)
* Pros
* PR
 | * PR patients; n=590
 | * 281/309 (66.7yr)
 | * 8-12 wk; 429
* 24 wk; 78
 | * 1. SOBQ
* 2. QLI-VIII
* 3. SF-36
 | * - 6MWT
 | * North Carolina PR program
 | * Physical performance, as measured by the 6MWT, continued to improve up to 24 wk of PR participation; QoL and the perception of dyspnea improved after 12 wk of PR with improvements maintained up to 24 wk of PR participation
 |
| * Aoun et al (2004)
* Pros
* CR
 | * Heartsmart patients; n=203
 | * 44/56 (61yr)
 | * 3 mo; 98
* 6 mo; 63
 | * UBQ-H
 | * - Smoking status
* - BP, cholesterol, dietary intentions
* - Medication regime
* - Self efficacy of patients to exercise
* - Active Australian Physical Activity survey
 | * Heart Smart program which consisted of a 7 wk bi-weekly physical activity session and education program
 | * HeartSmart participants demonstrated significant improvements in QoL, compliance with medication, dietary behaviour, weight-loss and physical activity
 |
| * California PR Collaborative Group (2004)
* Pros
* PR
 | * PR patient; n=647
 | * 273/374 (68yr)
 | * 6-8 wk; 521
* 3,6 mo; 415
 | * 1. SF-36
* 2. SOBQ
 | * Healthcare utilization
 | * Regular PR
 | * PR was effective in improving symptoms, QoL and reducing the utilization of healthcare resources over 18 mo
 |
| * Focht et al (2004)
* RCT
* CR
 | * - Usual CR; n=74
* - CBT CR patients; n=73
 | * 37/37 (64y)
* 40/33 (64y)
 | * 3 mo; 63/64
* 12 mo; 55/60
 | * SF-36
 | * Attendance to structured exercise therapy session.
 | * A multi-component CR program based on social-cognitive theory and group dynamics for use in older adults.
 | * Improvement in QoL among older adults enrolled in CR differed as a function of treatment, gender and initial health status
 |
| * aHevey et al (2004)
* Comp
* CR
 | * CR participants/
* cardiac patients;
* n=1485 (675/810)
 | * 308/103 (62.1y)
* 285/90 (62.7y)
 | * 10 wk; 411/375
 | * 1. HADS
* 2. Health complaints scale
* 3. QLI-CV III
* 4. SSAI
* 5. MacNew
* 6. CDS
* 7. GMS
* 8. HPPQ
* 9. SF-36
 |  |  |  |
| * Izawa et al (2004)
* Pros
* CR
 | * Acute myocardial infarction patients; n=109
 | * 89/20 (63.5yr)
 | * 1 mo; 109
* 6 mo; 90
 | * SF-36
 | * - Exercise capacity
* - Handgrip strength
* - Knee-extension muscular strength
* - Clinical characteristics
* - Evaluation of exercise maintenance
* - Physiological outcomes
 | * CR plus exercise maintenance over 6-mo
 | * 82.6% of patients continued exercise for more than 6 mo after CR
 |
| * Sin et al (2004)
* Retro
* CR
 | * CR patients; n=206
 | * 100/46 (60yr)
 | * 14 wk; 146
* 1 yr; 35
 | * SF-36
 | * Physical Activity Questionnaire
 | * CR which consisted of 8-14 wk of contact
 | * Some personal factors and health status are significant factors influencing the participant adherence to physical activity recommendations and QoL in CR
 |
| * aWilliams et al (2003)
* Pros
* PR
 | * - CRQ-SR patients; n=80
* - CRQ-IL+CRQ-SR patients; n=115
 | * 59/21 (67.7yr)
* 81/34 (66.2yr)
 | * 7 wk
 | * 1. CRQ-SR
* 2. CRQ-IL
 |  |  |  |
| * Verrill et al (2003)
* Pros
* CR
 | * CR patients; n=630
 | * 424/206 (61yr)
 |  | * 1. Ferrans and Powers QoL Inventory (QoLI)
 | * 6MWT
 | * Short-term outpatient CR
 | * CR improved 6MWT performance in patients aged 40 to 89 yr; no relationship was found between 6MWT and any domain of the QOLI.
 |
| * ade Torres et al (2002)
* Pros
* PR
 | * PR patients with COPD
 | * 18/19 (63yr); 37
 | * 6-8 wk
 | * 1. SGRQ
* 2. CRQ
* 3. SF-36
* 4. MRC
* 5. BDI/TDI
* 6. VAS
 |  |  |  |
| * Glazer et al (2002)
* Pros
* CR
 | * CR patients with coronary heart disease
 | * 34/12 (58yr); 46
 | * 12 wk
 | * 1. Life Orientation Test
* 2. Beck Depression Inventory
* 3. STAI
* 4. Physical Symptom Incidence and
* Distress Scale
 | * - BMI
* - max
* - Physical symptom reporting
 | * CR
 | * Depression appeared to have a significant influence on adherence and improvement among CR participants
 |
| * Goss et al (2002)
* Pros
* CR
 | * CR patients after bypass surgery
 | * 879/194 (64yr); 1073
 | * 6 mo; 947
* 1 yr; 691
 | * 1. SF-36
* 2. Seattle Angina Questionnaire
 | * - Comorbidity
* - Smoking
* - Cardiac health status
 | * Participants with >8 wk of CR; participants with <8 wk of CR; nonparticipants
 | * Participation in post-CABG CR, defined by patient self-report in a general practice environment, was not highly correlated with health-status improvement
 |
| * Jamieson et al (2002)
* Pros
* CR
 | * CR patients
 | * 217/84 (62yr);
* 301
 | * 3 mo
 | * SF-36
 | * - Type of cardiac procedure
* - Risk of subsequent cardiac event
* - Number of comorbid factors
 | * Comprehensive outpatient phase 2 CR
 | * Older age, female gender, high risk stratification and multiple comorbidities were related to poorer CR outcomes across multiple dimensions of QoL
 |
| * Stulbarg et al (2002)
* RCT
* PR
 | * PR patients with COPD
* 1. Training group received dyspnea self-management (DM) training+treadmill exercise for 8 wk; 24 30-min sessions, 3 times/wk
* 2. Exposure group received DM+4 30-min treadmill exercise sessions 2 wk apart
* 3. DM training only
 | * 22/12; (66.2yr)
* 19/14 (67.2yr)
* 16/20(65.7yr)
* 113 (34/33/36)
 | * 8 wk-103
 | * 1. BDI/TDI
* 2. CRQ
* 3. SF-36
 | * - Spirometry
* - Arterial blood gas analysis
* - 6MWT
 | * Dyspnea self-management in PR
 | * Exercise training substantially improved the impact of a dyspnea self-management program with a home walking prescription.
 |
| * Turner et al (2002)
* Pros
* CR
 |  | * 1514/388 (59.9yr/62.7yr);
* 1902
 | * Completion; 1443
 | * HADS
 | * predicted from the treadmill test
 | * Hospital-linked, community-based CR
 | * There is close interaction that exists among depression, failure to comply with lifestyle advice, defaulting from CR, and prognosis for cardiac patients
 |
| * White et al (2002)
* RCT
* PR
 | * - PR patients with severe COPD
* - Patients with brief advice
 | * 36/18 (67yr)
* 35/14 (67yr)
* 103 (54/49)
 | * 12 wk; 84
 | * 1. CRQ
* 2. SF-36
* 3. HADS
 | * - Ventilatory function
* - Shuttle walking distance
 | * PR
 | * In patients with severe COPD a short outpatient PR program of low intensity achieved small but significant improvement in shuttle walking distance compared with brief advice.
 |
| * Finnerty et al (2001)
* RCT
* PR
 | * - PR patients with COPD
* - Control
 | * 25/11 (70.4yr)
* 19/10 (68.4yr)
* 73 (33/40)
 | * 6 wk; 65 (36/29)
 | * SGRQ
 | * - BMI
* - Dietary habits
 | * 6-wk outpatient PR
 | * A 6-wk outpatient-based program significantly improved QoL in patients with moderate to severe COPD.
 |
| * aSingh et al (2001) Retro
* PR
 | * PR patients with COPD
 | * 58/39 (67yr)
* 97
 | * 7 wk; 34
 | * 1. GQoL
* 2. CRQ
* 3. SGRQ
* 4. BPQ
* 5. The Things People Do
 |  |  |  |
| * Verrill et al (2001)
* Pros
* CR
 | * CR patients
 | * 282/135 (48.4yr)
* 420
 | * 12 wk; 339
 | * Ferrans and Powers QoL-Cardiac III
 |  | * Multidisciplinary North Carolina PR programs
 | * Patients who participated in Phase 2 multidisciplinary North Carolina CR programs and completed the protocol improved QoL parameters.
 |
| * Bowen et al (2000)
* Retro
* PR
 | * PR patients
 | * 45/104 (69yr)
* 149
 |  | * PFSS
 | * - BMI
* - Medications
* - Supplemental oxygen requirement
 | * Connecticut Pulmonary Rehabilitation Consortium program
 | * Indicators of functional status are strong predictors of survival in patients with advanced lung disease.
 |
| * Guell et al (2000)
* RCT
* PR
 | * PR patients with COPD
 | * 60 (65yr)
* (30/30)
 | * 6 mo; 24/23
* 9 mo; 6/7
 | * CRQ
 | * - Lung function testing
* - 6MWT
* - Progressive exercise test
 | * Outpatient PR program with COPD patients
 | * Outpatient rehabilitation programs can achieve worthwhile benefits that persist for a period of 2 yr.
 |
| * Morrin et al (2000)
* Retro
* CR
 | * CR patients
 | * 93/33
* 126
 | * 12 wk
* 6 mo
 | * SF-36
 | * - Resting BP
* - Plasma lipid values
* - Physical activity measured as weekly energy expenditure
* - BMI
 | * A multiphase, multidisciplinary CR program
 | * Coronary risk factors and QoL improved at variable rates in this CR program, with physical activity levels improving earlier in the program and mental health adjustment occurring later.
 |
| * O’Farrell et al (2000)
* Retro
* CR
 | * CR patients
 | * 317 (59yr)/70 (61yr)
* 387
 | * 12 wk
 | * SF-36
 | * - Risk factor profile
* - Aerobic capacity
* - Activity values
 | * 3-mo multifactorial CR
 | * Although women enter CR programs in poorer cardiovascular health and with lower QoL scores than men, they benefit equally in terms of cardiovascular fitness, risk factor modification and QoL.
 |
| * Sledge et al (2000)
* Retro-matched case
* CR
 | - CR patients- Usual care | * 44/1
* 42
 | * 8 wk
 | * SF-36
 |  | * CR using an interdisciplinary approach to rehabilitation.
 | * More intensive programming may be a useful component of cardiac treatment in improving short-term QoL.
 |
| * Troosters et al (2000)
* RCT
* PR
 | * - PR patients with COPD
* - Control
 | * 31/29 (60yr)
* 30/20 (60yr)
* 100
* (50/50)
 | * 6 mo; 34/28
* 18 mo; 26/23
 | * CRQ
 | * - Pulmonary function test
* - Isometric quadriceps strength test
* - Inspiratory and expiratory muscle strength
* - 6MWT
* - Maximal exercise capacity
 | * Outpatient PR program for 6 mo
 | * Outpatient training resulted in significant and clinically relevant changes in 6MWT, maximal exercise performance, peripheral and respiratory muscle strength and QoL.
 |
| * Ades et al (1999)
* Pros
* CR
 | * CR patients
 | * 227/76 (60.6yr)
* 303
 | * 12 wk; 218
 | * 1. SF-36
* 2. Geriatric Depression Questionnaire
 | * - Symptom-limited treadmill exercise test
* - Strength measured by determination of a single-repetition maximal lift
* - A comorbidity score
 | * Exercise-based CR
 | * Self-reported physical function in coronary patients is related to age, sex, fitness and mood state
 |
| * Berkhuysen et al (1999)
* RCT
* CR
 | * - High frequency exercise
* - Low frequency exercise
 | * 52/11 (52yr)
* 62/5 (52.9yr)
* 130
* (58/58)
 | * 6 wk; 116
 | * 1. GHQ
* 2. SF-36
 |  | * 6-wk outpatient CR
 | * The frequency of aerobic exercise has a positive independent effect on psychological outcomes after CR
 |

* Abbreviations: ADI, Anxiety, Depression, Irritability scale; BDI/TDI, baseline and transition dyspnea indexes; BMI, body mass index; BP, blood pressure; BPQ, Breathing Problems Questionnaire; BSI, Brief Symptom Inventory; CABG, coronary artery bypass graft; CAD, coronary artery disease; CAT, COPD Assessment Test; CCQ, COPD Clinical Questionnaire; CDS, Cardiac Depression Scale; CES-D, Center for Epidemiological Study-Depression; Comp, nonrandomized comparison trial; COPD, chronic pulmonary disease; CR, cardiac rehabilitation; CRQ-IA, Chronic Respiratory Disease Questionnaire-interviewer administered; CRQ-IL, Chronic Respiratory Disease Questionnaire-interviewer led; CRQ-SA, Chronic Respiratory Disease Questionnaire-self- administered; CRQ-SR, Chronic Respiratory Disease Questionnaire-self-reported; CV-III, Cardiac Version III; EF, ejection fraction; FEV1, forced expiratory volume in 1 sec; FFM, fat-free mass; FT, Feeling Thermometer; FVC, forced vital capacity; GE, General Expectancy; HADS, Hospital Anxiety and Depression Index; GHQ, General Health Questionnaire; GMS, Global Mood Scale; GQoL, Generic Quality of Life; HCS, Health Complaints Scale; HDL, high-density lipoprotein; HPPQ, Heart Patient Psychological Questionnaire; HRQoL, health-related quality of life; HRV, heart rate variability; IES-R, Impact of Events Scale-Revised; ISWT, Intermittent Shuttle Walk Test; MacNew, Quality of Life After Myocardial Infarction questionnaire; MAF, Multidimensional Assessment of Fatique; MRC, Medical Research Council; NR, not reported; NETT, National Emphysema Treatment Trial; NYHA, New York Heart Association; PDS, Post-traumatic stress Diagnostic Scale; PE, expiratory pressure; PI, inspiratory pressure; PAD, peripheral artery disease; PFDSQ, Pulmonary Functional Status Dyspnea Questionnaire; PFSS, Pulmonary Function Status Scale; Pros, prospective longitudinal non-randomized trial; PR, pulmonary rehabilitation; PTSD, post-traumatic stress disorder; QLI-Qol, Quality of Life Index; QLI-CVIII, Quality of Life Index-Cardiac version III; QLI-VIII, Ferrans and Powers Quality of Life Index-version III; QoL, quality of life; QoLI, Quality of Life Inventory; RCT, randomized controlled trial; Retro, retrospective non-randomized trial; SF-36, Short Form-36 health questionnaire; SG, Standard Gamble; SGRQ, St George’s Respiratory Questionnaire; SOBQ, Shortness of Breath Questionnaire; SOLD-Q, Seattle Obstructive Lung Disease Questionnaire; STAI, Spielberger State-Trait Anxiety Inventory; STAI-T, State-Trait Anxiety Inventory-Trait; TUG, Timed Up and Go test; UCSD-SOB, University of California San Diego Shortness of Breath questionnaire; UBQ-H, Utility-based Quality of Life-Heart QoL survey; VAS, Visual Analog Scale; , oxygen uptake; 6MWD, 6-min walk distance; 12MWT, 12-min walk test.

aThese studies specifically examined the use of QoL measures and their responsiveness to both CR and PR.

Note: Refer to the SDC Reference List for the full citations of these studies.