

**The prognostic effect of cardiac rehabilitation  
in the era of acute revascularization and statin therapy -  
a systematic review and meta-analysis of randomized and non-randomized studies.**

**The Cardiac Rehabilitation Outcome Study – CROS**

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Rehabilitation Section”, European Association of Cardiovascular Prevention & Rehabilitation (EACPR),  
in cooperation with the Institute of Medical Biometry and Informatics (IMBI), Dept. of Medical  
Biometry, University of Heidelberg, and the Cochrane Metabolic and Endocrine Disorders Group,  
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## Search sources

**Table SM 1: Search Sources**

**Medline (incl. PubMed):** Search interface: PubMed – Date of search: Dec 22<sup>nd</sup> 2015

#1

"Acute Coronary Syndrome"[mh] OR "Angina, Unstable"[mh] OR "Coronary Occlusion"[mh] OR "Coronary Thrombosis"[mh] OR "Myocardial Infarction"[mh] OR "Myocardial Revascularization"[mh] OR myocardial infarct\*[tiab] OR coronary infarct\*[tiab] OR cardiac infarct\*[tiab] OR heart infarct\*[tiab] OR postmyocardial infarct\*[tiab] OR "post-MI"[tiab] OR heart attack\*[tiab] OR coronary attack\*[tiab] OR cardiac attack\*[tiab] OR myocardial attack\*[tiab] OR cardiac event\*[tiab] OR coronary event\*[tiab] OR myocardial event\*[tiab] OR coronary syndrome\*[tiab] OR cardiac syndrome\*[tiab] OR myocardial syndrome\*[tiab] OR "bypass grafting"[tiab] OR "coronary artery bypass"[tiab] OR "coronary bypass"[tiab] OR "cardiac bypass"[tiab] OR coronary thromb\*[tiab] OR intracoronary thromb\*[tiab] OR coronary angioplast\*[tiab] OR intracoronary angioplast\*[tiab] OR cardiac angioplast\*[tiab] OR coronary stent\*[tiab] OR intracoronary stent\*[tiab] OR cardiac stent\*[tiab] OR coronary intervention\*[tiab] OR intracoronary intervention\*[tiab] OR cardiac intervention\*[tiab] OR coronary reperfusion\*[tiab] OR intracoronary reperfusion\*[tiab] OR cardiac reperfusion\*[tiab] OR myocardial revasculari\*[tiab] OR coronary revasculari\*[tiab] OR cardiac revasculari\*[tiab] OR "myocardial stunning"[tiab] OR "cardiac stunning"[tiab]

#2

"Rehabilitation"[mh] OR "Rehabilitation"[sh] OR "Rehabilitation Centers"[mh:noexp] OR "Secondary Prevention"[mh] OR rehabilitat\*[tiab] OR rehab[tiab] OR cardio-rehabilit\*[tiab] OR secondary prevent\*[tiab] OR program[tiab] OR programme[tiab] OR programs[tiab] OR programmes[tiab]

#3

#1 AND #2

#4

"cardiac rehabilitation"[tiab]

#5

#3 OR #4

#6

#3 OR #4 Filters: Publication date from 1995/01/01 to 2015/12/31

#7 [Cochrane HSSS filter]

(randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR drug therapy[sh] OR randomly[tiab] OR trial[tiab] OR groups[tiab]) NOT (animals[mh] NOT humans[mh])

#8 [Own filter]

"cohort studies"[mh:noexp] OR "follow-up studies"[mh] OR "longitudinal studies"[mh] OR "prospective studies"[mh] OR cohort\*[tiab] OR prospectiv\*[tiab] OR longitudinal\*[tiab] OR follow-up\*[tiab] OR followup\*[tiab] OR "retrospective studies"[mh] OR retrospectiv\*[tiab]

#9

#7 OR #8

#10

#6 AND #9

#11

#10 AND medline[sb]

#12

#6 NOT medline[sb]

#13

#11 OR #12

#14

#13 NOT pmcbook

**Table SM 1: Search Sources (continued)****Embase**Search interface: Ovid SP – Date of search: Dec 22<sup>nd</sup> 2015 (Embase 1974 to 2015 Week 51)

#1

exp acute coronary syndrome/ or coronary artery thrombosis/ or exp percutaneous coronary intervention/ or exp unstable angina pectoris/ or exp heart infarction/ or exp coronary artery surgery/

#2

(myocardial infarct\* or coronary infarct\* or cardiac infarct\* or heart infarct\* or postmyocardial infarct\* or post-MI or heart attack\* or coronary attack\* or cardiac attack\* or cardiac event\* or coronary event\* or coronary syndrome or cardiac syndrome or bypass grafting or coronary artery bypass or coronary bypass or cardiac bypass or coronary thromb\* or intracoronary thromb\* or coronary angioplast\* or intracoronary angioplast\* or cardiac angioplast\* or coronary stent\* or intracoronary stent\* or cardiac stent\* or coronary intervention\* or intracoronary intervention\* or cardiac intervention\* or coronary reperfusion\* or intracoronary reperfusion\* or cardiac reperfusion\* or myocardial revasculari\* or coronary revasculari\* or cardiac revasculari\* or myocardial stunning or cardiac stunning).tw.

#3

1 or 2

#4

rehabilitation/ or heart rehabilitation/ or functional assessment/ or functional training/ or rehabilitation center/ or secondary prevention/

#5

(rehabilitat\* or rehab or cardiorehabilit\*).tw.

#6

4 or 5

#7

3 and 6

#8

"cardiac rehabilitation".tw.

#9

7 or 8

#10

limit 9 to yr=1995-Current

#11 [Wong 2006 Embase filter]

random\*.tw. or clinical trial\*.mp. or exp health care quality/

#12 [Own filter]

cohort analysis/ or longitudinal study/ or prospective study/ or follow up/ or retrospective study/ or (cohort\* or prospectiv\* or longitudinal\* or follow-up\* or followup\* or retrospectiv\*).tw.

#13

11 or 12

#14

10 and 13

<b>Table SM 1: Search Sources (continued)</b>	
<b>Cochrane Central Register of Controlled Trials</b>	
Search interface: Cochrane Library – Date of search: Dec 22 <sup>nd</sup> (Issue 11 of 12, 2015)	
#1	MeSH descriptor: [Acute Coronary Syndrome] explode all trees
#2	MeSH descriptor: [Angina, Unstable] explode all trees
#3	MeSH descriptor: [Coronary Occlusion] explode all trees
#4	MeSH descriptor: [Coronary Thrombosis] explode all trees
#5	MeSH descriptor: [Myocardial Infarction] explode all trees
#6	MeSH descriptor: [Myocardial Revascularization] explode all trees
#7	("myocardial infarct*" or "coronary infarct*" or "cardiac infarct*" or "heart infarct*" or "postmyocardial infarct*" or "post-MI" or "AMI" or "STEMI" or "NSTEMI" or "heart attack*" or "coronary attack*" or "cardiac attack*" or "myocardial attack*" or "cardiac event*" or "coronary event*" or "myocardial event*" or "coronary syndrome*" or "cardiac syndrome*" or "myocardial syndrome*" or "bypass grafting" or "coronary artery bypass" or "coronary bypass" or "cardiac bypass" or "CABG" or "coronary thromb*" or "intracoronary thromb*" or "coronary angioplast*" or "intracoronary angioplast*" or "cardiac angioplast*" or "coronary stent*" or "intracoronary stent*" or "cardiac stent*" or "PCI" or "coronary intervention*" or "intracoronary intervention*" or "cardiac intervention*" or "coronary reperfusion*" or "intracoronary reperfusion*" or "cardiac reperfusion*" or "myocardial revasculari*" or "coronary revasculari*" or "cardiac revasculari*" or "myocardial stunning" or "cardiac stunning"):ti,ab,kw
#8	#1 or #2 or #3 or #4 or #5 or #6 or #7
#9	MeSH descriptor: [Rehabilitation] explode all trees
#10	Any MeSH descriptor with qualifier(s): [Rehabilitation - RH]
#11	MeSH descriptor: [Rehabilitation Centers] explode all trees
#12	MeSH descriptor: [Secondary Prevention] explode all trees
#13	("rehabilitat*" or "rehab" or "cardiorehabilit*" or "secondary prevent*" or "program" or "programme" or "programs" or "programmes"):ti,ab,kw
#14	#9 or #10 or #11 or #12 or #13
#15	("cardiac rehabilitation"):ti,ab,kw
#16	#8 and #14
#17	#15 or #16

<b>Table SM 1: Search Sources (continued)</b>	
<b>CINAHL (Cumulative Index to Nursing and Allied Health Literature)</b>	
Search interface: EBSCOhost – Date of search: Dec 22 <sup>nd</sup> 2015	
(S1)	MH ("Acute Coronary Syndrome" OR "Angina, Unstable" OR "Coronary Thrombosis" OR "Myocardial Infarction" OR "Shock, Cardiogenic" OR "Myocardial Revascularization" OR "Coronary Artery Bypass" OR "Angioplasty, Transluminal, Percutaneous Coronary" OR "Cardiac Patients")
(S2)	TI ("myocardial infarct*" OR "coronary infarct*" OR "cardiac infarct*" OR "heart infarct*" OR "postmyocardial infarct*" OR "post-MI" OR "heart attack*" OR "coronary attack*" OR "cardiac attack*" OR "myocardial attack*" OR "cardiac event*" OR "coronary event*" OR "myocardial event*" OR "coronary syndrome*" OR "cardiac syndrome*" OR "myocardial syndrome*" OR "bypass grafting" OR "coronary artery bypass" OR "coronary bypass" OR "cardiac bypass" OR "coronary thromb*" OR "intracoronary thromb*" OR "coronary angioplast*" OR "intracoronary angioplast*" OR "cardiac angioplast*" OR "coronary stent*" OR "intracoronary stent*" OR "cardiac stent*" OR "coronary intervention*" OR "intracoronary intervention*" OR "cardiac intervention*" OR "coronary reperfusion*" OR "intracoronary reperfusion*" OR "cardiac reperfusion*" OR "myocardial revasculari*" OR "coronary revasculari*" OR "cardiac revasculari*" OR "myocardial stunning" OR "cardiac stunning")
(S3)	AB ("myocardial infarct*" OR "coronary infarct*" OR "cardiac infarct*" OR "heart infarct*" OR "postmyocardial infarct*" OR "post-MI" OR "heart attack*" OR "coronary attack*" OR "cardiac attack*" OR "myocardial attack*" OR "cardiac event*" OR "coronary event*" OR "myocardial event*" OR "coronary syndrome*" OR "cardiac syndrome*" OR "myocardial syndrome*" OR "bypass grafting" OR "coronary artery bypass" OR "coronary bypass" OR "cardiac bypass" OR "coronary thromb*" OR "intracoronary thromb*" OR "coronary angioplast*" OR "intracoronary angioplast*" OR "cardiac angioplast*" OR "coronary stent*" OR "intracoronary stent*" OR "cardiac stent*" OR "coronary intervention*" OR "intracoronary intervention*" OR "cardiac intervention*" OR "coronary reperfusion*" OR "intracoronary reperfusion*" OR "cardiac reperfusion*" OR "myocardial revasculari*" OR "coronary revasculari*" OR "cardiac revasculari*" OR "myocardial stunning" OR "cardiac stunning")
(S4)	S1 OR S2 OR S3
(S5)	MH ("Rehabilitation" OR "Rehabilitation, Cardiac" OR "Rehabilitation Centers" OR "Rehabilitation Patients" OR "Conditioning, Cardiopulmonary") OR MW "RH"
(S6)	TI (rehabilitat* OR rehab OR cardiorehabilit* OR "secondary prevent*" OR program OR programme OR programs OR programmes)
(S7)	AB (rehabilitat* OR rehab OR cardiorehabilit* OR "secondary prevent*" OR program OR programme OR programs OR programmes)
(S8)	S5 OR S6 OR S7
(S9)	S4 AND S8
(S10)	TI "cardiac rehabilitation" OR AB "cardiac rehabilitation"
(S11)	S9 OR S10
(S12)	S9 OR S10 Limiters - Published Date: 19950101-20151231
(S13)	[Wong 2006 CINAHL filter] MH "prognosis+" OR MH "study design+" or random*
(S14)	S12 AND S13

**Table SM 1: Search Sources (continued)****LILACS (Literatura Latino-Americana e do Caribe em Ciências da Saúde)**

Search interface: iAHx (<http://lilacs.bvsalud.org/>) – Date of search: Dec 22<sup>nd</sup> 2015 ("Last update: Dec., 18th., 2015")

*[Each line was run and exported separately.]*

#1

((((MH:"Acute Coronary Syndrome" OR MH:"Angina, Unstable" OR MH:"Coronary Occlusion" OR MH:"Coronary Thrombosis" OR MH:"Myocardial Infarction" OR MH:"Myocardial Revascularization") OR ((myocard\$ OR miocard\$ OR coronar\$ OR intracoronar\$ OR cardia\$ OR "unstable angina" OR "angina inestable" OR "angina inestavel") AND (infarct\$ OR infarto\$ OR attack\$ OR ataque\$ OR event\$ OR syndrome\$ OR sindrom\$ OR revasculariza\$ OR puente\$ OR ponte\$ OR bypass OR thromb\$ OR trombos\$ OR angioplast\$ OR oclus\$ OR oclus\$ OR intervenc\$ OR intervention\$ OR stent\$ OR reperfus\$ OR cirurgia OR cirugia))) AND (MH:"Rehabilitation" OR MH:"/rehabilitation" OR MH:"Rehabilitation Centers" OR MH:"Secondary Prevention" OR rehabilita\$ OR reabilita\$ OR rehab OR "secondary prevention" OR "prevencion secundaria" OR "prevencao secundaria" OR program OR programme OR programa OR programs OR programmes OR programas)) OR ("rehabilitacion cardiaca" OR "rehabilitacion cardiovascular" OR "reabilitacao cardiaca" OR "reabilitacao cardiovascular")  
+ "Type of study: Controlled Clinical Trial"

#2

((((MH:"Acute Coronary Syndrome" OR MH:"Angina, Unstable" OR MH:"Coronary Occlusion" OR MH:"Coronary Thrombosis" OR MH:"Myocardial Infarction" OR MH:"Myocardial Revascularization") OR ((myocard\$ OR miocard\$ OR coronar\$ OR intracoronar\$ OR cardia\$ OR "unstable angina" OR "angina inestable" OR "angina inestavel") AND (infarct\$ OR infarto\$ OR attack\$ OR ataque\$ OR event\$ OR syndrome\$ OR sindrom\$ OR revasculariza\$ OR puente\$ OR ponte\$ OR bypass OR thromb\$ OR trombos\$ OR angioplast\$ OR oclus\$ OR oclus\$ OR intervenc\$ OR intervention\$ OR stent\$ OR reperfus\$ OR cirurgia OR cirugia))) AND (MH:"Rehabilitation" OR MH:"/rehabilitation" OR MH:"Rehabilitation Centers" OR MH:"Secondary Prevention" OR rehabilita\$ OR reabilita\$ OR rehab OR "secondary prevention" OR "prevencion secundaria" OR "prevencao secundaria" OR program OR programme OR programa OR programs OR programmes OR programas)) OR ("rehabilitacion cardiaca" OR "rehabilitacion cardiovascular" OR "reabilitacao cardiaca" OR "reabilitacao cardiovascular")  
+ "Type of study: Cohort Study"

<b>Table SM 1: Search Sources (continued)</b>	
<b>CIRRIE (Center for International Rehabilitation Research Information and Exchange) database</b>	
Search interface: CIRRIE website ( <a href="http://cirrie.buffalo.edu/database/">http://cirrie.buffalo.edu/database/</a> ) – Date of search: Dec 22 <sup>nd</sup> 2015	
<i>[Each line was run and exported separately.]</i>	
#1	Title: "myocardial infarct", Subject: rehabilitation
#2	Title: "coronary infarct", Subject: rehabilitation
#3	Title: "cardiac infarct", Subject: rehabilitation
#4	Title: "heart infarct", Subject: rehabilitation
#5	Title: "heart attack", Subject: rehabilitation
#6	Title: "coronary attack", Subject: rehabilitation
#7	Title: "cardiac attack", Subject: rehabilitation
#8	Title: "cardiac event", Subject: rehabilitation
#9	Title: "coronary event", Subject: rehabilitation
#10	Title: "myocardial event", Subject: rehabilitation
#11	Title: "coronary syndrome", Subject: rehabilitation
#12	Title: "cardiac syndrome", Subject: rehabilitation
#13	Title: "myocardial syndrome", Subject: rehabilitation
#14	Title: "bypass grafting", Subject: rehabilitation
#15	Title: "coronary artery bypass", Subject: rehabilitation
#16	Title: "coronary bypass", Subject: rehabilitation
#17	Title: "cardiac bypass", Subject: rehabilitation
#18	Title: "coronary thromb", Subject: rehabilitation
#19	Title: angioplast, Subject: rehabilitation
#20	Title: stent, Subject: rehabilitation
#21	Title: "coronary intervention", Subject: rehabilitation
#22	Title: "cardiac intervention", Subject: rehabilitation
#23	Title: "coronary reperfusion", Subject: rehabilitation
#24	Title: "cardiac reperfusion", Subject: rehabilitation
#25	Title: "myocardial revasculari", Subject: rehabilitation
#26	Title: "coronary revasculari", Subject: rehabilitation
#27	Title: "cardiac revasculari", Subject: rehabilitation
#28	Title: stunning, Subject: rehabilitation
#29	Title: angina, Subject: rehabilitation
#30	Title: "cardiac rehabilitation"



**Table SM 1: Search Sources (continued)****ICTRP (International Clinical Trials Registry Platform)**

Search interface: ICTRP Search Portal (<http://apps.who.int/trialsearch/>) – Date of last search: Dec 22<sup>nd</sup> 2015

- Australian New Zealand Clinical Trials Registry, last data file imported on **14 December 2015**
- Chinese Clinical Trial Registry, last data file imported on **14 December 2015**
- ClinicalTrials.gov, last data file imported on **14 December 2015**
- EU Clinical Trials Register (EU-CTR), last data file imported on **14 December 2015**
- ISRCTN, last data file imported on **14 December 2015**
- The Netherlands National Trial Register, last data file imported on **14 December 2015**
- Brazilian Clinical Trials Registry (ReBec), last data file imported on **7 December 2015**
- Clinical Trials Registry - India, last data file imported on **7 December**
- Clinical Research Information Service - Republic of Korea, last data file imported on **7 December 2015**
- Cuban Public Registry of Clinical Trials, last data file imported on **7 December 2015**
- German Clinical Trials Register, last data file imported on **7 December 2015**
- Iranian Registry of Clinical Trials, last data file imported on **7 December 2015**
- Japan Primary Registries Network, last data file imported on **14 December 2015**
- Pan African Clinical Trial Registry, last data file imported on **7 December 2015**
- Sri Lanka Clinical Trials Registry, last data file imported on **7 December 2015**
- Thai Clinical Trials Register (TCTR), last data file imported on **7 December 2015**

**Table SM 1: Search Sources (continued)**

*[Each line was run and exported separately.]*

**(#1)**

myocardial infarct\* AND rehab\* OR coronary infarct\* AND rehab\* OR cardiac infarct\* AND rehab\* OR heart infarct\* AND rehab\* OR postmyocardial infarct\* AND rehab\* OR post-MI AND rehab\* OR heart attack\* AND rehab\* OR coronary attack\* AND rehab\* OR cardiac attack\* AND rehab\* OR myocardial attack\* AND rehab\* OR cardiac event\* AND rehab\* OR coronary event\* AND rehab\* OR myocardial event\* AND rehab\* OR coronary syndrome\* AND rehab\* OR cardiac syndrome\* AND rehab\* OR myocardial syndrome\* AND rehab\* OR bypass grafting AND rehab\* OR coronary artery bypass AND rehab\* OR coronary bypass AND rehab\* OR cardiac bypass AND rehab\* OR coronary thromb\* AND rehab\* OR intracoronary thromb\* AND rehab\* OR coronary angioplast\* AND rehab\* OR intracoronary angioplast\* AND rehab\* OR cardiac angioplast\* AND rehab\* OR coronary stent\* AND rehab\* OR intracoronary stent\* AND rehab\* OR cardiac stent\* AND rehab\* OR coronary intervention\* AND rehab\* OR intracoronary intervention\* AND rehab\* OR cardiac intervention\* AND rehab\* OR coronary reperfusion\* AND rehab\* OR intracoronary reperfusion\* AND rehab\* OR cardiac reperfusion\* AND rehab\* OR myocardial revasculari\* AND rehab\* OR coronary revasculari\* AND rehab\* OR cardiac revasculari\* AND rehab\* OR myocardial stunning AND rehab\* OR cardiac stunning AND rehab\* OR AMI AND rehab\* OR STEMI AND rehab\* OR NSTEMI AND rehab\* OR PCI AND rehab\* OR CABG AND rehab\* OR PTCA AND rehab\* OR unstable angina AND rehab\*

**(#2)**

myocardial infarct\* AND program\* OR coronary infarct\* AND program\* OR cardiac infarct\* AND program\* OR heart infarct\* AND program\* OR postmyocardial infarct\* AND program\* OR post-MI AND program\* OR heart attack\* AND program\* OR coronary attack\* AND program\* OR cardiac attack\* AND program\* OR myocardial attack\* AND program\* OR cardiac event\* AND program\* OR coronary event\* AND program\* OR myocardial event\* AND program\* OR coronary syndrome\* AND program\* OR cardiac syndrome\* AND program\* OR myocardial syndrome\* AND program\* OR bypass grafting AND program\* OR coronary artery bypass AND program\* OR coronary bypass AND program\* OR cardiac bypass AND program\* OR coronary thromb\* AND program\* OR intracoronary thromb\* AND program\* OR coronary angioplast\* AND program\* OR intracoronary angioplast\* AND program\*

**(#3)**

cardiac angioplast\* AND program\* OR coronary stent\* AND program\* OR intracoronary stent\* AND program\* OR cardiac stent\* AND program\* OR coronary intervention\* AND program\* OR intracoronary intervention\* AND program\* OR cardiac intervention\* AND program\* OR coronary reperfusion\* AND program\* OR intracoronary reperfusion\* AND program\* OR cardiac reperfusion\* AND program\* OR myocardial revasculari\* AND program\* OR coronary revasculari\* AND program\* OR cardiac revasculari\* AND program\* OR myocardial stunning AND program\* OR cardiac stunning AND program\* OR AMI AND program\* OR STEMI AND program\* OR NSTEMI AND program\* OR PCI AND program\* OR CABG AND program\* OR PTCA AND program\* OR unstable angina AND program\*

**(#4)**

cardiac rehabilitation

**Table SM 1: Search Sources (continued)****Footnotes:**

**Cochrane HSS filter:** Cochrane Highly Sensitive Search Strategy for identifying randomized trials in MEDLINE: sensitivity-maximizing version, 2008 revision (available at: <http://handbook.cochrane.org/>)

**Own filter:** Own cohort study filter based on two (unvalidated) search filters: BMJ Cohort Filter (available at: <http://clinicalevidence.bmj.com/x/set/static/ebm/learn/665076.html>) and University of Texas Cohort Filter (available at: [http://libguides.sph.uth.tmc.edu/ovid\\_medline\\_filters](http://libguides.sph.uth.tmc.edu/ovid_medline_filters))

**Wong 2006 Embase filter:** Wong SS, Wilczynski NL, Haynes RB. [Developing optimal search strategies for detecting clinically sound treatment studies in EMBASE](#). *Journal of the Medical Library Association* 2006;94(1):41-7.

**Wong 2006 CINAHL filter:** Wong SS, Wilczynski NL, Haynes RB. [Optimal CINAHL search strategies for identifying therapy studies and review articles](#). *Journal of Nursing Scholarship* 2006;38(2):194-9.

## Excluded studies and justification for exclusion

<b>Table SM 2: Excluded studies and justification for exclusion</b>		
<b>Study</b>	<b>Reason for exclusion based on</b>	<b>Study selection level:</b>
(abstracts and design papers of studies included into CROS meta-analysis are not listed in this table) <b>CO</b> , study was included into Cochrane meta-analysis 2016 (1, 2)	(P) Population (I) Intervention (C) Controls (O) Outcomes (OR) Other reasons	PS = PreSelection FTE = Full Text Evaluation SSE = Structured Study Evaluation PS (+) = Only conference abstract available, but study and potential publication has to be followed <b>Final search:</b> <b>Dec 22<sup>nd</sup> 2015</b>
<b>1995</b>		
Bondestam E et al.(3)	(P) Population recruited before 1995	PS
Cannistra LB et al.(4)	(C) No control without CR	PS
Gohlke-Bärwolf C et al.(5)	(OR) No original study	PS
Hamalainen H et al.(6)	(P) Index event before 1995	PS
Scherwitz LW et al.(7)	(P) Population recruited before 1995	PS
Heller LF et al.(8)	(I) No comprehensive CR	PS
<b>1996</b>		
Jones DA et al.(9)	(P) Population recruited before 1995	PS
Lidell E et al.(10)	(P) Population recruited before 1995	PS
MRFIT publishers(11)	(P) Population recruited before 1995	PS
Allen JK et al.(12)	(O) No prognostic outcomes as defined by CROS	PS
Engblom E et al.(13) <b>CO</b>	(P) Population recruited before 1995	PS
Rugulies R et al(14)	(C) No control as defined by CROS	PS
Speccia C et al.(15) <b>CO</b>	(P) Population recruited from 1992–1995	PS
<b>1997</b>		
Ornish lifestyle program (16)	(OR) No original study	PS
Almeida P et al. (17)	(O) No prognostic outcomes	PS
Bundy C (18)	(OR) Only commentary	PS
Engblom E et al. (19)	(P) Population recruited before 1995	PS
Frasure-Smith et al. (20)	(I) No intervention as defined by CROS	PS
Kozlov ID et al. (21)	(P) Inclusion period to a significant part before 1995 (O) No prognostic outcomes	PS
Lee SS (22)	(O) No prognostic outcomes	PS
Niebauer J et al. (23)	(P) Population recruited before 1995	PS
Roseler et al. (24)	(P) Population recruited 1993–1995 (I) Only phase III CR	PS
Tanabe K et al. (25)	(OR) Full paper not available	PS
Van Dixhoom J et al. (26)	(P) Population recruited before 1995	PS

**Table SM2: Excluded studies and justification for exclusion (continued)**

<b>1998</b>			
Ali A et al. (27)	(O)	No prognostic outcomes as defined by CROS	PS
Bell JM, (28) <b>CO</b>	(C)	No control according to CROS criteria	PS + FTE
Campbell NC et al. (29)	(I)	No exercise	PS
Carlsson R et al. (30) <b>CO</b>	(O)	No predefined prognostic outcomes (only surrogate parameters)	PS + FTE
Fattirolli F et al. (31)	(OR)	Only description of study design	PS
	(O)	Outcomes do not meet CROS criteria	
Jitpraphai C et al. (32)	(P)	Population recruited before 1995	PS
Jolly K et al. (SHIP) (33)	(O)	No prognostic outcomes	PS
Nahhas GT et al. (34)	(OR)	Only abstract	PS
Ornish D et al. (35)	(P)	Trial conducted before 1995	PS
Ornish D (36)	(P)	Population recruited before 1995	PS + FTE
Walters J et al. (37)	(P)	Population recruited before 1995	PS
	(I)	Phase I rehabilitation	
<b>1999</b>			
Stahle A et al. (38) <b>CO</b>	(I)	Only exercise	PS
Ma H et al. (39)	(C)	Not control according to CROS criteria	PS
Lisspers J et al. (40)	(P)	Population recruited 1993–1995	PS
Jolly K et al. (41)	(O)	No outcomes as defined by CROS	PS
Johnston M et al. (42)	(O)	No outcomes as defined by CROS	PS
Hofman Bang C et al. (43) <b>CO</b>	(P)	Population recruited 1993–1995	PS
Dugmore LD et al. (44) <b>CO</b>	(P)	Population recruited before 1995	PS
Bethell HJN et al. (45)	(P)	Population recruited before 1995	PS
Wallner S et al. (46)	(P)	Population recruited in 1994–1995	PS
van Dixhoorn JJ et al. (47)	(P)	Population recruitment before 1995	PS
Takahashi H et al. (48)	(P)	Population recruitment before 1995	PS
<b>2000</b>			
Allison TG et al., CHEER (49)	(I)	Intervention without exercise	PS
Epstein AM et al. (50)	(OR)	Only abstract	PS
See also Goss JR et al. 2002 (51)	(O)	No prognostic outcomes	
Fridlund B et al. (52)	(O)	No outcomes as defined by CROS	PS
Hata R et al. (53)	(OR)	Only abstract, full paper not found	PS
Naughton J et al. (54)	(P)	Population recruited before 1995	PS
Pater C et al., CORE study (55)	(OR)	Only study design, publication of study results not found	PS
Steffen-Batey L et al. (56)	(P)	Population recruited before 1995	PS
Corpus Christi Heart Project			
Toobert DJ et al. (57) <b>CO</b>	(O)	Health related quality of life	PS
Women's Lifestyle Heart Trial			

**Table SM2: Excluded studies and justification for exclusion (continued)**

<b>2001</b>			
Baessler A et al. (58)	(P)	Index events before 1995	PS + FTE
Belardinelli R et al. (59) <b>CO</b>	(P)	Population recruited before 1995	PS
ETICA trial	(I)	Only exercise	
Denollet J et al. (60)	(P)	Population recruited before 1995	PS
Fonarow GC et al. (61)	(I)	Intervention does not meet CROS criteria	PS
CHAMP			
Hedbäck B et al. (62)	(P)	Population recruited before 1995	PS
Higgins HC et al. (63) <b>CO</b>	(P)	Patients after PCI	PS
	(O)	No predefined prognostic outcomes	
Whellan DJ et al. (64)	(P)	Index event does not meet CROS criteria and took place before 1995 in a significant part of patients	PS
Sharma B et al. (65) <sup>1</sup>	(P)	Population recruited 1991–1996	PS
<b>2002</b>			
Buchwalsky G et al. (66)	(I)	Phase III rehabilitation	PS
Desmarais PL et al. (67)	(C)	No control	PS
Goss JR et al. (51)	(O)	No clinical events	PS + FTE
Hall JP et al. (68)	(O)	No clinical events	
Kavanagh T et al. (69)	(P)	Recruitment before 1995	PS
La Rovere MT et al. (70) <b>CO</b>	(P)	Recruitment before 1995	PS
Oldridge N et al. (71)	(OR)	Meta-analysis	PS
Warren TF (72)	(P)	Index events before 1995	PS
Winberg B et al. (73)	(P)	Patient's inclusion period to a significant part before 1995	PS + FTE
Wright DJ et al. (74)	(O)	Outcomes do not meet CROS criteria	PS
<b>2003</b>			
Afrasiabi SG et al. (75)	(O)	No prognostic outcomes as defined by CROS	PS + FTE
Aldana SG et al. (76) (Ornish programme)	(O)	Outcomes do not meet CROS criteria	PS
Chiashi K et al. (77)	(P)	Inclusion of study participants before 1995	PS
Frenn M et al. (78)	(P)	No index event	PS + FTE
ISRCTN73884263	(OR)	Design paper	PS
BRUM study (79)	(C)	Control does not meet CROS criteria	
Johansen S et al. (80)	(I)	No structured and supervised exercise	PS
Marchionni N et al. (81) <b>CO</b>	(O)	No outcomes as defined by CROS	PS
Murchie P et al. (82)	(P)	Patients with CAD, no index events described	PS + FTE
	(I)	No structured exercise	

**Table SM2: Excluded studies and justification for exclusion (continued)**

Pasquali SK et al. (83)	(O)	Functional status as primary endpoint. Rehospitalization as secondary endpoint biased by premature deaths not evaluated	PS + FTE
Sundin O et al. (84)	(O)	No prognostic outcomes	PS
Vitcenda M (85)	(C)	No control as defined by CROS	PS
VHSG, Vestfold Heartcare Study Group (86) <b>CO</b>	(P)	Mixed population with a large part of chronic CAD	PS + FTE
	(O)	No outcomes as defined by CROS, calculating the 5-years CAD risk according to the WOSCOPS study algorithm	
Young W et al. (87)	(I)	Intervention does not meet CROS criteria	PS
<b>2004</b>			
Ballegaard S et al. (88)	(P)	Population does not meet CROS criteria	PS
	(I)	no structured and supervised Exercise	
Hambrecht R et al. (89) <b>CO</b>	(P)	Only stable angina pectoris	PS
	(I)	Only exercise	
ISRCTN74601515 (90)	(OR)	Study registration (DANREHAB TRIAL), see also Zwisler AD et al. 2005 <sup>90</sup> and Zwisler AD et al. 2008 <sup>91</sup>	PS
	(P)	Population does not meet CROS criteria	
Jiang X (91)	(P)	No index event as described by CROS	PS
	(O)	Follow-up too short (3 months)	
Kotseva K et al. (92)	(O)	No prognostic outcomes	PS
Murchie P et al. (93)	(I)	No structured supervised exercise	PS
Piesterzeniewicz K et al. (94)	(C)	No control as defined by CROS	PS + FTE
Sundarajan V et al. (95)	(OR)	design problems: linkage of two data bases resulted in classification error in 30% of the participants	PS + FTE
Witt BJ et al. (96)	(P)	Population recruited from 1982–1998	PS + FTE
Yu CM et al. (97)	(O)	No prognostic outcome	PS

**Table SM2: Excluded studies and justification for exclusion (continued)**

<b>2005</b>			
Austin J et al. (98)	(P)	No index events as defined by CROS	PS
Briffa TG et al. <sup>(99)</sup> <b>CO</b>	(O)	no prognostic outcomes (costs, HRQL)	PS + FTE
Dendale P et al. (100)	(P)	No index events as described by CROSS	PS + FTE
Lisspers J et al. (101)	(P)	Index events do not meet CROS criteria	PS + FTE
Maroto Montero JM et al. (102) <b>CO</b>	(P)	Inclusion period starts before 1995	PS + FTE
Raftery JP et al. (103)	(I)	No structured exercise	PS + FTE
Sinclair AJ et al. (104)	(I)	Intervention does not meet CROS criteria	PS
Zwisler AD et al. (105)	(OR)	DANREHAB trial, design paper; See publication of results in 2008 (106)	PS
	(P)	Population does not meet CROS Criteria (including risk patients without proven CAD)	
<b>2006</b>			
Bhaskaran A et al. (107)	(OR)	Meeting abstract; full paper not found	PS
Herdy AH et al. (108)	(OR)	Meeting abstract See publication of results in 2008 <sup>108</sup>	PS
	(I)	Intervention does not meet CROS criteria	
	(O)	outcomes do not meet CROS criteria	
Kappagoda CT et al. (109)	(P)	No index event as defined by CROS	
	(C)	No controls as defined by CROS	
Kovoor P et al. (110) <b>CO</b>	(P)	selectively low risk patients	PS + FTE + SSE
	(I)	minimal frequency of exercise as defined by CROS may not have been achieved	
	(O)	Primary outcome does not meet CROS criteria	
Lear SA et al. (111)	(O)	Outcomes do not meet CROS criteria	PS
Soerensen C et al. (112)	(OR)	Only abstract; full paper based on this title has not been found; compare Nielsen KM et al. 2008 <sup>113</sup>	PS
Viswanathan K et al. (113)	(OR)	Only abstract; full paper not found	PS
Zhang YM et al. (114)	(I)	Phase I CR in hospital	PS



**Table SM2: Excluded studies and justification for exclusion (continued)**

<b>2007</b>			
Carrol DL et al. (115)	(I)	Intervention does not meet CROS criteria	PS
Hua ST et al. (116)	(OR) (O)	Meeting abstract outcomes do not meet CROS criteria	PS
Jiang X et al. (117)	(I)	Intervention does not meet CROS criteria	PS
Macchi C et al. (118)	(C)	No prognostic outcomes No control without CR	PS
Merenich JA et al. (119)	(I)	No supervised and professionally controlled exercise sessions	PS + FTE
Suaya JA et al. (120)	(O)	Outcomes do not meet CROS criteria	PS + FTE
<b>2008</b>			
Batista IBI et al. (121)	(OR)	Only abstract, full paper not found	PS
Canyon S et al. (122)	(P)	Mixed population including patients only at CAD risk	PS + FTE + SSE
Delaney EK et al. (123)	(P)	No index events as defined by CROS	PS + FTE
Dendale P et al. (124)	(I) (P)	No regular supervised exercise Primarily patients after elective PCI	PS + FTE
Giannuzzi P et al. (125)	(I)	Phase III rehabilitation	PS
Herdy AH et al. (126)	(I) (O)	phase I rehabilitation No outcomes as defined by CROS	PS
Huang Y et al. (127)	(P)	Population overlaps with Kutner et al. 2006 <sup>128</sup>	PS + FTE + SSE
Kummel M et al. (128)	(I)	No structured exercise	PS
Naser A et al. (129)	(O)	No outcomes as defined by CROS	PS
Silva, RC et al. (130)	(I)	No structured exercise sessions	
Zwisler, AD et al. (106)	(P)	Mixed population not following CROS criteria, and including patients without proven CAD	PS + FTE + SSE
<b>2009</b>			
Cortes, OL (131)	(OR)	Systematic review	PS
Edstrom-Pluss, C et al. (132)	(C) (I)	No control group defined by CROS Evaluation of extended CR	PS
Giallauria, F et al. (133)	(C) (I)	No control group without CR Phase III rehabilitation	PS
Jolly et al. (134) BRUM study	(C) (O)	No control group as defined by CROS No prognostic outcomes	PS + FTE
King, M et al. (135)	(C)	No control group	PS
Lafitte, M et al. (136)	(I)	No exercise based CR	PS + FTE
CEPTA programme	(C)	No control	

**Table SM2: Excluded studies and justification for exclusion (continued)**

<b>2010</b>			
Hamill, BG et al. (137)	(C)	No control as defined by CROS	PS
Hansen, D et al. (138)	(O)	No control as defined by CROS	PS
NCT01075867 (139)	(OR)	Study design	PS
ELIPSE programme	(I)	Intervention does not meet CROS criteria	
Onishi, T et al. (140)	(I)	CR starts too late after index event; exercise intensity is too low	PS + FTE
Silberman, A et al. (141)	(P)	No index events as defined by CROS	PS
Soga, Y et al. (142)	(P)	Only patients after elective PCI	PS
	(O)	Outcome is safety of CR after PCI	
<b>2011</b>			
Boyden, T F et al. (143)	(OR)	Conference abstract	PS
	(C)	No control without CR; see Doll, JA et al. 2015 (144)	
Gulliksson, M et al. (145)	(I)	No exercise based CR	PS
JPRN-UMIN000005177 (146)	(P)	No index event as defined by CROS	PS
Lam, G et al. (147)	(O)	Follow-up too short	PS
Lewinter C et al. (148)	(OR)	Conference abstract; see also Lewinter C et al. 2012 (149)	PS
	(I)	Evaluation of CR referral rather than CR attendance	
Milani, RV et al. (150)	(P)	Population is a subset of depressed heart failure patients	PS
Moreno-Palanco, MA et al. (151)	(P)	Population includes stroke patients	PS
MIRVAS study	(I)	No structured and supervised exercise	
Piso, B et al. (152)	(I)	Phase III cardiac rehabilitation	PS
Pluss, CE et al. (153)	(C)	No control group without CR	PS
Soga, Y et al. (154)	(P)	Index event does not meet CROS criteria	PS
<b>2012</b>			
Armstrong, MJ et al. (155)	(OR)	Conference abstract, See Armstrong MJ et al. 2015(156)	PS
	(P)	Population overlaps with the study published by Martin, BJ 2012(157)	
Franklin, BA (158)	(OR)	Comment referring to West RR et al. (159)	PS
Ghroubi, S et al. (160)	(OR)	Conference abstract	PS
	(O)	Outcomes do not meet CROS criteria	

**Table SM2: Excluded studies and justification for exclusion (continued)**

Iliou, MC et al. (161) French FAST-MI study	(OR)	Conference abstract, see also Pouche, M et al. 2013 (abstract), (162) and Pouche, M et al. 2015 (163)	PS
Kubilius, R et al. (164)	(P)	Population does not meet CROS criteria	PS
Lewinter, C et al. (149)	(I)	Evaluation of CR referral rather than attendance	PS
Mayer-Berger, W et al. (165)	(I)	Phase III cardiac rehabilitation	PS
Naranjo-Estupinan NF, et al. (166)	(OR)	pCCS with a low number of participants and a high grade of asymmetric distribution within three study arms; no further information from authors available	PS + FTE + SSE
Ou, HT & Balkrishnan, R (167)	(OR) (O)	Conference abstract, Effect of CR after AMI on cost effectiveness and rehospitalization	<b>PS (+)</b>
Parashar, S et al. (168)	(O)	No prognostic outcomes	PS
Rangel, I et al. (169)	(C)	Control does not meet CROS criteria	PS
Rideout, A et al. (170)	(I)	Pre-surgical rehabilitation	PS
Suzuki, T et al. (171)	(P)	No predefined index event	PS + FTE
<b>2013</b>			
Gambogi R et al. (172)	(OR) (I)	Conference abstract, Effect of CR on clinical course, survival and revascularization	<b>PS (+)</b>
Hung RK et al. (173)	(I)	No comprehensive CR as defined by CROS	PS
Jorstad HT, (174) RESPONSE trial	(I)	No structured exercise as defined by CROS	PS
Kotseva, K et al. (175) EUROASPIRE III	(O)	No prognostic outcomes	PS
Lear SA, et al. (176)	(OR) (I)	conference abstract, not to be followed Internet-based prevention program	PS
Longobardi G et al. (177)	(O) (OR) (I)	no outcomes as defined by CROS Only abstract, not to be followed Prognostic effect of physical exercise levels before a cardiac event	PS
Martin BJ et al. (178)	(I)	Study compares fitness levels	PS
Meisinger, C et al. (179)	(I)	No structured and supervised Exercise	PS

<b>Table SM2: Excluded studies and justification for exclusion (continued)</b>		
Mudrick, DW et al. (180)	(OR) Conference abstract, (O) Effect of CR and hospital Readmission	<b>PS (+)</b>
Murphy, BM et al. (181)	(I) No structured supervised exercise	PS
Naci, H et al. (182)	(OR) Meta-analysis	PS
Panovsky, R et al. (183)	(P) Only patients with chronic CAD included (C) No control as defined by CROS	PS + FTE + SSE
Pouche, M et al. (162) French FAST-MI study	(OR) Conference abstract, see also Pouche M et al. 2015 (165) (I) CR referral rather than Participation	PS
Russo N et al. (184)	(OR) Conference abstract, not to be followed (C) No control	PS
Santaularia N et al. (185)	(OR) Study design RCT to evaluate the effect of a structured exercise program in CAD patients with ischemia	<b>PS (+)</b>
Sobolev, M. et al. (186)	(OR) Conference abstract (O) Comparison of re-hospitalization rates between CR attenders and non-attenders	<b>PS (+)</b>
Turkstra, E et al. (187)	(I) Intervention does not meet CROS criteria (O) Health related quality of life and physical activity	PS
Vervueren, PL et al. (188) French MONICA registry	(OR) Conference abstract	<b>PS (+)</b>
<b>2014</b>		
ACTRN12614000284662, (189) Central Australian heart protection Study	(OR) Registration of study design, (I) Prognostic effect of a family based secondary prevention program after ACS	<b>PS (+)</b>
Alter DA, et al. (190)	(C) No comparison between CR and non CR	PS
Anderson LJ, & Taylor RS (191)	(OR) Review of meta-analyses	PS
Cobo Gomez N et al. (192)	(P) No index events as defined by CROS	PS
Dunlay SM et al. (193)	(P) Recruitment 1987–2010	PS + FTE + SSE
Otero Chulian, E et al. (194)	(OR) Conference abstract, to be followed	<b>PS (+)</b>
Expósito-Tirado JA et al. (195)	(C) No control as defined by CROS	PS
Kamath, DY et al. (196)	(OR) Design paper, not to be followed (I) Intervention does not meet CROS Criteria	PS

<b>Table SM2: Excluded studies and justification for exclusion (continued)</b>			
Kim, SS et al. (197)	(I)	No structured and supervised Exercise	PS + FTE
Kureshi F et al. (198)	(OR)	Conference abstract, Effect of CR on health status scores and mortality after AMI	<b>PS (+)</b>
Lewinter C et al. (199)	(I)	CR referral rather than CR Attendance; see also Lewinter C et al. 2011 and 2012, (148, 149)	PS + FTE + SSE
Lewinter C et al. (200) DANREHAB trial	(OR) (P)	Conference abstract Only heart failure patients without primary ACS	PS
Lubinskaya, E et al. (201)	(OR)	Conference abstract, effect of CR on cost effectiveness including prognosis	<b>PS (+)</b>
Martin, BJ et al. (202)	(P)	Overlap of population with earlier publications, see Martin BJ et al. 2012 (157)	PS + FTE + SSE
Maddison, R et al. (203) <b>CO</b> REMOTE-CR	(I)	Intervention does not meet CROS criteria	PS
Ramirez -Moreno, A et al. (204)	(C)	no controls as defined by CROS	PS
	(O)	no outcomes as defined by CROS	
Santoalha, JM et al. (205)	(OR)	Conference abstract, not to be followed	<b>PS (+)</b>
	(C)	no control group	
	(O)	RCT evaluating CR compliance rather than CR attendance.	
Sharma, R et al. (206) APPROACH registry	(OR)	Conference abstract	<b>PS (+)</b>
	(P)	APPROACH registry 2002–2012	
<b>2015</b>			
Armstrong MJ et al.(156)	(P)	Population Overlap of population compared to study of Martin et al. 2012 (confirmed by author)	PS + FTE
Bubnova, M et al. (207)	(OR)	Conference abstract	<b>PS (+)</b>
	(I)	Intervention might not follow CROS criteria of multi-component CR	
Chen, HM et al. (208)	(I)	Only phase I cardiac rehabilitation	PS + FTE + SSE
Chew, DP et al. (209)	(OR)	Design paper	PS
	(I)	Application of risk stratification tool, no multi-component CR	

**Table SM2: Excluded studies and justification for exclusion (continued)**

Colbert, JD et al. (210) APPROACH and CWIC registry	(P)	Population considerably overlaps with Martin BJ et al. as confirmed by authors	PS + FTE
Cobo Gomez, N et al. (211)	(OR) (O)	Conference abstract Mortality and events after PCI in patients with incomplete re-vascularization	<b>PS (+)</b>
Cobo Gomez, N et al. (212)	(OR) (P)	Conference abstract, Patients with ischemic cardiomyopathy and reduced LV-function	<b>PS (+)</b>
Coll-Fernandez, R. et al. (213)	(OR) (P)	Conference abstract Population with a large overlap to a previous study of the same group, Coll-Fernandez, R et al. 2014 <sup>214</sup>	PS
Deljanin Ilic M, et al. (214)	(OR) (C)	Conference abstract No control group as defined by CROS	PS
Doll, JA et al. (144) ACTION Registry-GWTG	(C)	No control group without CR	PS + FTE
Gencer, B et al. (215) Swiss ELIPS program	(OR) (I)	Conference abstract Intervention does not meet CROS Criteria	PS
Kadda, O et al. (216)	(I)	No CR program as defined by CROS, predominantly life style instruction program	PS + FTE
NCT02584192 (217)	(OR) (O)	Trial registration No prognostic outcomes as defined by CROS	PS
NTR5306 (218)	(OR)	Trial registration, not to be followed	PS
Pouche, M. et al. (163) French FAST-MI registry	(C) (I)	No control group Only evaluation of CR referral, but not CR attendance (confirmed by author)	PS + FTE
Romero Reyes, MJ et al. (219)	(OR) (P)	Conference abstract, Only elective PCI?	<b>PS (+)</b>
Sanchez Martinez, M et al. (220)	(OR) (O)	Conference abstract No prognostic outcomes	PS
Vataman, EB et al. (221)	(OR) (O)	Conference abstract Rehospitalization rate	<b>PS (+)</b>
Wang, W et al. (222)	(OR) (I) (O)	Conference abstract home based self-management program, no structured supervised exercise Risk parameters and unplanned use of health services	PS

## Study evaluation: Newcastle – Ottawa Scale (NOS)

**Table SM 3: Evaluation of controlled cohort studies: Newcastle – Ottawa Scale (NOS)**

Study	Boulay P et al. (223)	Norris CM et al. (224)	Kutner NG et al. (225)	Milani RV et al. (226)	Nielsen KM et al. (227)	Alter DA et al. (228)	Hansen D et al. (229)	Suaya JA et al. (230)	Jünger J et al. (231)	Goel K et al. (232)	Kim C et al. (233)	Schwaab B et al. (234)	Martin BJ et al. (157)	Beauchamp A et al. (235)	Lee HY et al. (236)	Marzolini S et al. (237)	Pack QR et al. (238)	Coll-Fernandez R et al. (239)	Prince DZ et al. (240)	Rauch B et al. (241)	Goel K et al. (242)	De Vries H et al. (243)	Meurs M et al. (244)	Schlitt A et al. (245)	
<b>Basic design</b>	rCCS	rCCS	rCCS	rCCS	rCCS	rCCS	pCCS	rCCS	rCCS	rCCS	pCCS	rCCS	pCCS	rCCS	pCCS	pCCS	rCCS	pCCS	rCCS	pCCS	rCCS	rCCS	rCCS	rCCS	
<b>Selection of the participants</b>																									
Representativeness of exposed cohort *	+	+	0	0	+	+	+	+	+	+	0	0	+	+	+	+	+	+	+	+	+	+	0	0	
Selection of control	0	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ascertainment of exposure	+	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	0
Outcome not present at start of study †	0	0	0	0	0	0	+	0	0	0	+	0	+	0	+	+	0	+	0	+	0	0	0	0	0
<b>Comparability of the cohorts</b>																									
<b>Controls for most important factors, Intervention and controls are taken from the same cohort</b>	<b>0</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>0</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>0</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>	<b>+</b>
<b>Outcomes</b>																									
Assessment of outcomes	0	+	+	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Follow-up long enough?	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adequacy of follow-up	0	+	+	0	+	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	0	0
<b>Sum of positive adjudications (+)</b>	<b>3</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>6</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>4</b>	
*representativeness was regarded to be limited if the population was recruited from pre-existing studies with differing goals.																									
† retrospective studies were adjudicated with “0”																									

## Sensitivity analyses

Table SM 4: Sensitivity analyses							
Outcome	Population	Design	Reason for sensitivity analysis	HR (95% CI)	OR (95% CI); pooling method	Statistical heterogeneity: I-squared tau-squared p-value	
Total mortality	ACS	rCCS	Meurs M et al. 2015: data of independent groups used (244)	0.58 (0.42-0.82)		48.8%; 0.044; p=0.14	
	ACS	rCCS	Nielsen KM et al. 2008: rates for 1-year mortality used (227)		0.25 (0.15-0.40); MH *	17.1%; 0.052; p=0.27	
	CABG	rCCS	De Vries H et al. 2015: data of independent groups used (243)	0.62 (0.54-0.71)		0.0%; 0.0; p=0.43	
	CABG	rCCS	Goel K et al. 2013: data of independent groups used (242)	0.56 (0.45-0.69)		35.7%; 0.018; p=0.20	
	MIXED	rCCS	Goel K et al. 2011: data of propensity score stratification used (232)	0.52 (0.35-0.76)		84.2%; 0.15; p<0.0001	
	MIXED	rCCS	Schlitt A et al. 2015: data of independent groups used (245)	0.45 (0.27-0.77)		92.8%; 0.331 p<0.0001	
			rCCS	Norris CM et al, 2004: rates for matched groups used(224)		0.83 (0.25-2.74); MH	70.0%; 0.219; p=0.04
		MIXED	pCCS	Martin BJ et al. 2012: data of independent groups used (157)	0.58 (0.48-0.70)		NA †
Cardio-vascular mortality	MIXED	rCCS	Goel K et al. 2011: data of propensity score stratification used (232)	0.61 (0.41-0.91)		NA	
Non fatal myocardial infarction	ACS	RCT	West RR et al. 2012: data for independent groups used (159)		0.80 (0.5-1.3); MH	NA	
	MIXED	rCCS	Goel K et al. 2011: data of propensity score stratification used (232)	1.07 (0.85-1.35)		NA	



**Table SM 4: Sensitivity analyses (continued)**

Unplanned readmission for any cardiovascular event	ACS	RCT	West RR et al. 2012: data for independent groups used (159)		1.09 (0.82-1.44); MH	NA
	MIXED	pCCS	Martin BJ et al. 2012: data of independent groups used (157)	0.68 (0.55-0.84)		NA
Combined endpoints	MIXED	rCCS	Goel K et al. 2011: data of propensity score stratification used (232)	0.92 (0.79-1.08)		NA

\* MH, Mantel-Haenszel pooling; †NA, not applicable

## Checklist according to MOOSE and PRISMA statements

<b>Table SM 5: Checklists of reporting</b>			
<b>MOOSE statement (246)</b>		<b>PRISMA statement (247)</b>	
<b>Section, topic</b>	<b>Described in manuscript: yes/no; comments</b>	<b>Section, topic</b>	<b>Described in manuscript: yes/no; comments</b>
		<b>Title</b>	Yes
		Structured summary	Yes
<b>Reporting of Background</b>		<b>Introduction</b>	
Problem definition	Yes, Introduction	Rational	Yes
Hypothesis	Yes, Introduction	Objectives	Yes
Description of study outcomes	Yes, Methods, Table 1		
Type of intervention	Yes, Methods, Table 1		
Type of study designs	Yes, Methods, Table 1		
Study population	Yes, Methods, Table 1		
<b>Reporting of Search Strategy</b>			
Qualification of searchers	Yes, Methods		
Search strategy, time period	Yes, Methods, Supplemental Material Table SM 1		
Effort to include all available studies	Yes, Methods, Figure 1, Table 2		
Data bases searched	Yes, Summary, Methods, Supplemental Material, Table SM 1		
Search software used	Yes, Methods		
Use of hand-searching	Yes, routinely done in reference lists of selected studies		
List of citations located and excluded	Yes, Table 2 and Supplemental Material, Table SM 1		

<b>Table SM 5: Checklists of reporting (continued)</b>			
<b>MOOSE statement</b>		<b>PRISMA statement</b>	
<b>Section, topic</b>	<b>Described in manuscript: yes/no; comments</b>	<b>Section, topic</b>	<b>Described in Manuscript: yes/no; Comments</b>
Methods of handling abstracts and unpublished studies	Yes, Supplemental Material, Table SM2		
Description of contact to authors	Yes, Table 2		
<b>Reporting of Methods</b>		<b>Reporting of Methods</b>	
Appropriateness of studies assessed	Yes, Table 2	Protocol and registration	Yes; PROSPERO CRD42014007084
Rational for selection and coding of data	Yes, Methods	Eligibility criteria, PICOS	Yes, Methods, Table 1
Documentation of how data were classified and coded	Yes, Methods, Figure 1	Information sources	Yes; Methods, Supplemental Material Table SM 1
Assessment of confounding	Yes, Methods, Tables 4a, 4b, Supplemental Material Table SM3	Search	Electronic search strategy described in Methods, Supplemental Material, Table SM1
Assessment of study quality	Yes, Methods, Tables 4a, 4b, SM3	Study selection	Yes; Methods, Fig. 1; Supplemental Material. Tables SM1, SM2
Assessment of heterogeneity	Yes, Methods, Figure 2, Table 3	Data collection process	Yes; Methods
Description of statistical methods	Yes, Methods	Data items	Yes, Methods, Table 1 (predefined PICOs)
Appropriate Figures and Tables	Yes	Risk of bias in individual studies	Yes; Methods, Tables 4a, 4b; Supplemental Material, Table SM3
		Summary measures	Yes, Methods; Results
		Synthesis of results	Yes, Methods
		Risk of bias across the studies	Yes, Methods
		Additional analyses	Yes, sensitivity analyses, Supplemental Material, Table SM3
<b>Reporting of Results</b>		<b>Reporting of Results</b>	
Giving descriptive information for each study included	Yes, Table 2	Study selection	Yes, Results, Figure 1
		Study characteristics	Yes, Table 2
		Results of individual studies	Yes, Table 2
		Risk of bias within the studies	Yes, Tables 4a,b; Suppl. Material, Table SM 3
Graphics and tables summarizing results	Yes, Figure 2, Table 3	Synthesis	Yes, Figure 2, Table 3

<b>Table SM 5: Checklists of reporting (continued)</b>			
<b>MOOSE statement</b>		<b>PRISMA statement</b>	
<b>Section, topic</b>	<b>Described in manuscript: yes/no; comments</b>	<b>Section, topic</b>	<b>Described in Manuscript: yes/no; Comments</b>
Indication of statistical uncertainty	Yes, Figure 2, Table 3	Risk of bias across studies	Addressed, see “statistical analysis” in Methods
Results of sensitivity testing	Yes, Results, Supplemental Material, Table SM 4	Additional analyses	Yes, sensitivity analysis, Supplemental Material Table SM 4
<b>Reporting of Discussion</b>		<b>Reporting of Discussion</b>	
Quantitative assessment of bias	Yes	Summary of evidence	Yes
Justification of exclusion	Yes	Limitations	Yes
Assessment of quality	Yes		
<b>Reporting of Conclusions</b>		<b>Reporting of Conclusions</b>	
Consideration of alternative explanations	Yes	Conclusions	Yes
Generalization of the conclusions	Yes	General interpretation and implications	Yes
Guidelines for future research	Yes	<b>Funding</b>	
Disclosure of funding source	Yes	Funding sources	Yes

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