

# Clinical trials of CABG

TrialResults-center [www.trialresultscenter.org](http://www.trialresultscenter.org)

## 1 stable angina

Trial	Treatments	Patients	Trials design and methods
<b>TMR+CABG vs CABG</b>			
<a href="#">Allen , 2000</a> n=132/131 follow-up:	coronary bypass of suitable vessels plus transmyocardial revascularization to areas not graftable versus coronary bypass alone with nongraftable areas left unrevascularized	patients whose standard of care was coronary artery bypass grafting and who had one or more ischemic areas not amenable to bypass grafting	single blind
<a href="#">Loubani , 2003</a> n=10/10 follow-up: 36 months	coronary artery bypass grafting plus transmyocardial laser revascularization with a holmium:YAG (yttrium-aluminum-garnet) laser to nongraftable areas versus coronary artery bypass grafting	Patients who had elective coronary artery bypass with one or more nongraftable coronary arteries	Parallel groups open UK
<a href="#">Zhao , 2006</a> n=40/40 follow-up: 3.4y	transmyocardial laser revascularization (holmium: YAG) combined with off-pump coronary artery bypass versus off-pump coronary artery bypass	patients with diffusely diseased target vessels	Parallel groups open China
<b>CABG+surgical ventricular reconstruction vs CABG</b>			
<a href="#">STICH (ventricular reconstruction) , 2009</a> [NCT00023595] n=501/499 follow-up: 48 months	CABG with surgical ventricular reconstruction versus CABG	patients with anterior-apical regional left ventricular dysfunction	Parallel groups open
<b>CABG vs medical treatment</b>			
<a href="#">STICH (vs med) , 2011</a> [NCT00023595] n=602/610 follow-up: 56 months	CABG versus medical therapy	patients with congestive heart failure and severe LV dysfunction	Parallel groups open 26 countries

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>CASS subgroup , 1985</b> n=78/82 follow-up: 7 years	CABG versus medical treatment	selected patients with chronic, stable coronary artery disease, sub group of patients ejection fractions above 0.34 but below 0.50 at base line	Parallel groups open
<b>ECSS (European) , 1988</b> n=394/373 follow-up: 12 y	early coronary bypass surgery versus medical therapy	men with midl or moderate angina pectoris of at least 3 months duration and an obstruction of 50% or more in at least 2 major coronary arteries in the absence of marked LV dysfunction	Parallel groups open Europe (6 countries)
<b>CASS , 1983</b> [NCT00000489] n=390/390 follow-up: 5y	surgical versus nonsurgical	patients with stable ischemic heart disease	Parallel groups open USA, Canada
<b>VA , 1984</b> n=332/354 follow-up: 7 y	coronary-artery bypass grafting versus medical treatment	patients with stable angina	Parallel groups open
<b>Texas , 1977</b> n=56/60 follow-up:	-	-	
<b>Oregon , 1979</b> n=51/49 follow-up:	surgical treatment versus medical treatment	patients with stable, disabling angina	
<b>New zealand 1 , 1981</b> n=50/50 follow-up: 4.5 y	surgical versus nonsurgical	men 60 years of age or younger who had recovered from a recurrent myocardial infarction	
<b>MASS II , 2007</b> n=203/203 follow-up: 5 years	coronary artery bypass graft (CABG) versus medical therapy	multivessel coronary artery disease with stable angina and preserved ventricular function.	Parallel groups open
<b>CABG or PCI vs medical treatment</b>			
<b>BARI 2D , 2009</b> [NCT00006305] n=1176/1192 follow-up: 5.3 y	prompt revascularization with intensive medical therapy versus intensive medical therapy alone	patients with type 2 diabetes and heart disease	Parallel groups open US, Canada, Brazil, Mexico, Czech Republic, Austria

More details and results :

- myocardial revascularization for stable angina in all type of patient at <http://www.trialresultscenter.org/go-Q25>
- myocardial revascularization for stable angina in diabetic patients at <http://www.trialresultscenter.org/go-Q29>

- myocardial revascularization for stable angina in patients with Left Ventricular Dysfunction at <http://www.trialresultscenter.org/go-Q501>

## References

### Allen, 2000:

Allen KB, Dowling RD, DelRossi AJ, Realyvasques F, Lefrak EA, Pfeffer TA, Fudge TL, Mostovych M, Schuch D, Szentpetery S, Shaar CJ Transmyocardial laser revascularization combined with coronary artery bypass grafting: a multicenter, blinded, prospective, randomized, controlled trial. *J Thorac Cardiovasc Surg* 2000;119:540-9 [[10694615](#)]

### Loubani, 2003:

Loubani M, Chin D, Leverment JN, Galianes M Mid-term results of combined transmyocardial laser revascularization and coronary artery bypass. *Ann Thorac Surg* 2003;76:1163-6 [[14530005](#)]

### Zhao, 2006:

Zhao H, Wan F, Guo JX, Chen Y, Xie JY, Yang W, Zhang P [Chronic effects of transmyocardial laser revascularization combined with off-pump coronary artery bypass (OPCAB) compared with OPCAB alone in patients with ischemic heart disease: a prospective multicenter follow-up study] *Zhonghua Xin Xue Guan Bing Za Zhi* 2006;34:710-3 [[17081396](#)]

### STICH (ventricular reconstruction), 2009:

Jones RH, Velazquez EJ, Michler RE, Sopko G, Oh JK, O'Connor CM, Hill JA, Menicanti L, Sadowski Z, Desvigne-Nickens P, Rouleau JL, Lee KL Coronary bypass surgery with or without surgical ventricular reconstruction. *N Engl J Med* 2009 Apr 23;360:1705-17 [[19329820](#)] [10.1056/NEJMoa0900559](#)

Jones RH, White H, Velazquez EJ, Shaw LK, Pietrobon R, Panza JA, Bonow RO, Sopko G, O'Connor CM, Rouleau JL STICH (Surgical Treatment for Ischemic Heart Failure) trial enrollment. *J Am Coll Cardiol* 2010;56:490-8 [[20670760](#)] [10.1016/j.jacc.2009.11.102](#)

### STICH (vs med), 2011:

Velazquez EJ, Lee KL, Deja MA, Jain A, Sopko G, Marchenko A, Ali IS, Pohost G, Gradinac S, Abraham WT, Yui M, Prabhakaran D, Szwed H, Ferrazzi P, Petrie MC, O'Connor CM, Panchavinnin P, She L, Bonow RO, Rankin GR, Jones RH, Rouleau JL Coronary-Artery Bypass Surgery in Patients with Left Ventricular Dysfunction. *N Engl J Med* 2011 Apr 4;: [[21463150](#)] [10.1056/NEJMoa1100356](#)

Velazquez EJ, Lee KL, Jones RH, Al-Khalidi HR, Hill JA, Panza JA, Michler RE, Bonow RO, Doenst T, Petrie MC, Oh JK, She L, Moore VL, Desvigne-Nickens Coronary-Artery Bypass Surgery in Patients with Ischemic Cardiomyopathy. *N Engl J Med* 2016;374:1511-20 [[27040723](#)]

Velazquez EJ, Lee KL, Jones RH, Al-Khalidi HR, Hill JA, Panza JA, Michler RE, Bonow RO, Doenst T, Petrie MC, Oh JK, She L, Moore VL, Desvigne-Nickens Coronary-Artery Bypass Surgery in Patients with Ischemic Cardiomyopathy. *N Engl J Med* 2016;374:1511-20 [[27040723](#)]

### CASS subgroup, 1985:

Passamani E, Davis KB, Gillespie MJ, Killip T A randomized trial of coronary artery bypass surgery. Survival of patients with a low ejection fraction. *N Engl J Med* 1985;312:1665-71 [[3873614](#)] [10.1056/NEJM198506273122603](#)

Alderman EL, Fisher LD, Litwin P, Kaiser GC, Myers WO, Maynard C, Levine F, Schloss M Results of coronary artery surgery in patients with poor left ventricular function (CASS). *Circulation* 1983;68:785-95 [[6352078](#)]

### ECSS (European), 1988:

Varnauskas E Twelve-year follow-up of survival in the randomized European Coronary Surgery Study. *N Engl J Med* 1988 Aug 11;319:332-7 [[3260659](#)]

Long-term results of prospective randomised study of coronary artery bypass surgery in stable angina pectoris. European Coronary Surgery Study Group. *Lancet* 1982 Nov 27;2:1173-80 [6128492]

Coronary-artery bypass surgery in stable angina pectoris: Survival at two years. European Coronary Surgery Study Group. *Lancet* 1979 Apr 28;1:889-93 [86665]

Prospective randomised study of coronary artery bypass surgery in stable angina pectoris. Second interim report by the European Coronary Surgery Study Group. *Lancet* 1980 Sep 6;2:491-5 [6105556]

Prospective randomized study of coronary artery bypass surgery in stable angina pectoris: a progress report on survival. *Circulation* 1982 Jun;65:67-71 [7044607]

#### **CASS, 1983:**

Coronary artery surgery study (CASS): a randomized trial of coronary artery bypass surgery. Survival data. *Circulation* 1983 Nov;68:939-50 [6137292]

Alderman EL, Bourassa MG, Cohen LS, Davis KB, Kaiser GG, Killip T, Mock MB, Pettinger M, Robertson TL Ten-year follow-up of survival and myocardial infarction in the randomized Coronary Artery Surgery Study. *Circulation* 1990 Nov;82:1629-46 [2225367]

Chaitman BR, Ryan TJ, Kronmal RA, Foster ED, Frommer PL, Killip T Coronary Artery Surgery Study (CASS): comparability of 10 year survival in randomized and randomizable patients. *J Am Coll Cardiol* 1990 Nov;16:1071-8 [2229750]

Coronary artery surgery study (CASS): a randomized trial of coronary artery bypass surgery. Quality of life in patients randomly assigned to treatment groups. *Circulation* 1983 Nov;68:951-60 [6137293]

Myocardial infarction and mortality in the coronary artery surgery study (CASS) randomized trial. *N Engl J Med* 1984 Mar 22;310:750-8 [6608052]

Rogers WJ, Coggin CJ, Gersh BJ, Fisher LD, Myers WO, Oberman A, Sheffield LT Ten-year follow-up of quality of life in patients randomized to receive medical therapy or coronary artery bypass graft surgery. The Coronary Artery Surgery Study (CASS) *Circulation* 1990 Nov;82:1647-58 [1977531]

#### **VA, 1984:**

Eleven-year survival in the Veterans Administration randomized trial of coronary bypass surgery for stable angina. The Veterans Administration Coronary Artery Bypass Surgery Cooperative Study Group. *N Engl J Med* 1984 Nov 22;311:1333-9 [6333636]

Parisi AF, Khuri S, Deupree RH, Sharma GV, Scott SM, Luchi RJ Medical compared with surgical management of unstable angina. 5-year mortality and morbidity in the Veterans Administration Study. *Circulation* 1989 Nov;80:1176-89 [2680157]

Takaro T, Peduzzi P, Detre KM, Hultgren HN, Murphy ML, van der Bel-Kahn J, Thomsen J, Meadows WR Survival in subgroups of patients with left main coronary artery disease. Veterans Administration Cooperative Study of Surgery for Coronary Arterial Occlusive Disease. *Circulation* 1982 Jul;66:14-22 [6979435]

Eighteen-year follow-up in the Veterans Affairs Cooperative Study of Coronary Artery Bypass Surgery for stable angina. The VA Coronary Artery Bypass Surgery Cooperative Study Group. *Circulation* 1992 Jul;86:121-30 [1617765]

Murphy ML, Hultgren HN, Detre K, Thomsen J, Takaro T Treatment of chronic stable angina. A preliminary report of survival data of the randomized Veterans Administration cooperative study. *N Engl J Med* 1977 Sep 22;297:621-7 [331107]

Peduzzi P, Detre K, Gage A Veterans Administration Cooperative Study of medical versus surgical treatment for stable angina—progress report. Section 2. Design and baseline characteristics. *Prog Cardiovasc Dis* 1985 Nov-Dec;28:219-28 [3903866]

Detre K, Murphy M, Hammermeister KE, Sako Y, Meadows WR Veterans Administration Cooperative Study of medical versus surgical treatment for stable angina—progress report. Section 9. Effect of medical versus surgical treatment on resting left ventricular ejection fraction at five years. *Prog Cardiovasc Dis* 1986 Jan-Feb;28:293-9 [3511513]

Murphy ML, Meadows WR, Thomsen J, Hultgren HN, Takaro T, Fish R, Read R Veterans Administration Cooperative Study on medical versus surgical treatment for stable angina—progress report. Section 11. The effect of coronary artery bypass surgery on the incidence of myocardial infarction and hospitalization. *Prog Cardiovasc Dis* 1986 Jan-Feb;28:309-17 [3511515]

**Texas, 1977:**

Mathur VS, Guinn GA Prospective randomized study of the surgical therapy of stable angina. *Cardiovasc Clin* 1977;8:131-44 [[332367](#)]

**Oregon, 1979:**

Kloster FE, Kremkau EL, Ritzmann LW, Rahimtoola SH, Rsch J, Kanarek PH Coronary bypass for stable angina: a prospective randomized study. *N Engl J Med* 1979 Jan 25;300:149-57 [[310511](#)]

**New zealand 1, 1981:**

Norris RM, Agnew TM, Brandt PW, Graham KJ, Hill DG, Kerr AR, Lowe JB, Roche AH, Whitlock RM, Barratt-Boyes BG Coronary surgery after recurrent myocardial infarction: progress of a trial comparing surgical with nonsurgical management for asymptomatic patients with advanced coronary disease. *Circulation* 1981 Apr;63:785-92 [[7471334](#)]

**MASS II, 2007:**

Hueb W, Lopes NH, Gersh BJ, Soares P, Machado LA, Jatene FB, Oliveira SA, Ramires JA Five-year follow-up of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease. *Circulation* 2007 Mar 6;115:1082-9 [[17339566](#)]

Hueb W, Soares PR, Gersh BJ, Csar LA, Luz PL, Puig LB, Martinez EM, Oliveira SA, Ramires JA The medicine, angioplasty, or surgery study (MASS-II): a randomized, controlled clinical trial of three therapeutic strategies for multivessel coronary artery disease: one-year results. *J Am Coll Cardiol* 2004;43:1743-51 [[15145093](#)]

Hueb W, Lopes N, Gersh BJ, Soares PR, Ribeiro EE, Pereira AC, Favarrato D, Rocha AS, Hueb AC, Ramires JA Ten-year follow-up survival of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease. *Circulation* 2010;122:949-57 [[20733102](#)] [10.1161/CIRCULATIONAHA.109.911669](#)

**BARI 2D, 2009:**

Baseline characteristics of patients with diabetes and coronary artery disease enrolled in the Bypass Angioplasty Revascularization Investigation 2 Diabetes (BARI 2D) trial. *Am Heart J* 2008;156:528-536, 536.e1-5 [[18760137](#)]

A Randomized Trial of Therapies for Type 2 Diabetes and Coronary Artery Disease. *N Engl J Med* 2009;: [[19502645](#)]

Chaitman BR, Hardison RM, Adler D, Gebhart S, Grogan M, Ocampo S, Sopko G, Ramires JA, Schneider D, Frye RL The Bypass Angioplasty Revascularization Investigation 2 Diabetes Randomized Trial of Different Treatment Strategies in Type 2 Diabetes Mellitus With Stable Ischemic Heart Disease. Impact of Treatment Strategy on Cardiac Mortality and Myocardial Infarction. *Circulation* 2009;: [[19920001](#)]

Dagenais GR, Lu J, Faxon DP, Kent K, Lago RM, Lezama C, Hueb W, Weiss M, Slater J, Frye RL Effects of Optimal Medical Treatment With or Without Coronary Revascularization on Angina and Subsequent Revascularizations in Patients With Type 2 Diabetes Mellitus and Stable Ischemic Heart Disease. *Circulation* 2011;123:1492-1500 [[21444887](#)] [10.1161/CIRCULATIONAHA.110.978247](#)

## 2 coronary artery disease

Trial	Treatments	Patients	Trials design and methods
<b>TMR+CABG vs CABG</b>			

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
Allen , 2000 n=132/131 follow-up:	coronary bypass of suitable vessels plus transmyocardial revascularization to areas not graftable versus coronary bypass alone with nongraftable areas left unrevascularized	patients whose standard of care was coronary artery bypass grafting and who had one or more ischemic areas not amenable to bypass grafting	single blind
Loubani , 2003 n=10/10 follow-up: 36 months	coronary artery bypass grafting plus transmyocardial laser revascularization with a holmium:YAG (yttrium-aluminum-garnet) laser to nongraftable areas versus coronary artery bypass grafting	Patients who had elective coronary artery bypass with one or more nongraftable coronary arteries	Parallel groups open UK
Zhao , 2006 n=40/40 follow-up: 3.4y	transmyocardial laser revascularization (holmium: YAG) combined with off-pump coronary artery bypass versus off-pump coronary artery bypass	patients with diffusely diseased target vessels	Parallel groups open China
<b>CABG+surgical ventricular reconstruction vs CABG</b>			
STICH (ventricular reconstruction) , 2009 [NCT00023595] n=501/499 follow-up: 48 months	CABG with surgical ventricular reconstruction versus CABG	patients with anterior-apical regional left ventricular dysfunction	Parallel groups open
<b>CABG vs medical treatment</b>			
STICH (vs med) , 2011 [NCT00023595] n=602/610 follow-up: 56 months	CABG versus medical therapy	patients with congestive heart failure and severe LV dysfunction	Parallel groups open 26 countries
CASS subgroup , 1985 n=78/82 follow-up: 7 years	CABG versus medical treatment	selected patients with chronic, stable coronary artery disease, sub group of patients ejection fractions above 0.34 but below 0.50 at base line	Parallel groups open
ECSS (European) , 1988 n=394/373 follow-up: 12 y	early coronary bypass surgery versus medical therapy	men with midl or moderate angina pectoris of at least 3 months duration and an obstruction of 50% or more in at least 2 major coronary arteries in the absence of marked LV dysfunction	Parallel groups open Europe (6 countries)

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>CASS , 1983</b> [NCT00000489] n=390/390 follow-up: 5y	surgical versus nonsurgical	patients with stable ischemic heart disease	Parallel groups open USA, Canada
<b>VA , 1984</b> n=332/354 follow-up: 7 y	coronary-artery bypass grafting versus medical treatment	patients with stable angina	Parallel groups open
<b>Texas , 1977</b> n=56/60 follow-up:	-	-	
<b>Oregon , 1979</b> n=51/49 follow-up:	surgical treatment versus medical treatment	patients with stable, disabling angina	
<b>New zealand 1 , 1981</b> n=50/50 follow-up: 4.5 y	surgical versus nonsurgical	men 60 years of age or younger who had recovered from a recurrent myocardial infarction	
<b>MASS II , 2007</b> n=203/203 follow-up: 5 years	coronary artery bypass graft (CABG) versus medical therapy	multivessel coronary artery disease with stable angina and preserved ventricular function.	Parallel groups open
<b>CABG or PCI vs medical treatment</b>			
<b>BARI 2D , 2009</b> [NCT00006305] n=1176/1192 follow-up: 5.3 y	prompt revascularization with intensive medical therapy versus intensive medical therapy alone	patients with type 2 diabetes and heart disease	Parallel groups open US, Canada, Brazil, Mexico, Czech Republic, Austria

More details and results :

- myocardial revascularization for coronary artery disease in all type of patient at <http://www.trialresultscenter.org/go-Q26>
- myocardial revascularization for coronary artery disease in diabetic patients at <http://www.trialresultscenter.org/go-Q30>
- transmymocardial revacularization for coronary artery disease in all type of patients at <http://www.trialresultscenter.org/go-Q274>
- myocardial revascularization for coronary artery disease in patients with left ventricular dysfunction at <http://www.trialresultscenter.org/go-Q502>

## References

Allen, 2000:

Allen KB, Dowling RD, DelRossi AJ, Realyvasques F, Lefrak EA, Pfeffer TA, Fudge TL, Mostovych M, Schuch D, Szentpetery S, Shaar CJ Transmyocardial laser revascularization combined with coronary artery bypass grafting: a multicenter, blinded, prospective, randomized, controlled trial. *J Thorac Cardiovasc Surg* 2000;119:540-9 [[10694615](#)]

**Loubani, 2003:**

Loubani M, Chin D, Leverment JN, Galianes M Mid-term results of combined transmyocardial laser revascularization and coronary artery bypass. *Ann Thorac Surg* 2003;76:1163-6 [[14530005](#)]

**Zhao, 2006:**

Zhao H, Wan F, Guo JX, Chen Y, Xie JY, Yang W, Zhang P [Chronic effects of transmyocardial laser revascularization combined with off-pump coronary artery bypass (OPCAB) compared with OPCAB alone in patients with ischemic heart disease: a prospective multicenter follow-up study] *Zhonghua Xin Xue Guan Bing Za Zhi* 2006;34:710-3 [[17081396](#)]

**STICH (ventricular reconstruction), 2009:**

Jones RH, Velazquez EJ, Michler RE, Sopko G, Oh JK, O'Connor CM, Hill JA, Menicanti L, Sadowski Z, Desvigne-Nickens P, Rouleau JL, Lee KL Coronary bypass surgery with or without surgical ventricular reconstruction. *N Engl J Med* 2009 Apr 23;360:1705-17 [[19329820](#)] [10.1056/NEJMoa0900559](#)

Jones RH, White H, Velazquez EJ, Shaw LK, Pietrobon R, Panza JA, Bonow RO, Sopko G, O'Connor CM, Rouleau JL STICH (Surgical Treatment for Ischemic Heart Failure) trial enrollment. *J Am Coll Cardiol* 2010;56:490-8 [[20670760](#)] [10.1016/j.jacc.2009.11.102](#)

**STICH (vs med), 2011:**

Velazquez EJ, Lee KL, Deja MA, Jain A, Sopko G, Marchenko A, Ali IS, Pohost G, Gradinac S, Abraham WT, Yui M, Prabhakaran D, Szwed H, Ferrazzi P, Petrie MC, O'Connor CM, Panchavinnin P, She L, Bonow RO, Rankin GR, Jones RH, Rouleau JL Coronary-Artery Bypass Surgery in Patients with Left Ventricular Dysfunction. *N Engl J Med* 2011 Apr 4;: [[21463150](#)] [10.1056/NEJMoa1100356](#)

Velazquez EJ, Lee KL, Jones RH, Al-Khalidi HR, Hill JA, Panza JA, Michler RE, Bonow RO, Doenst T, Petrie MC, Oh JK, She L, Moore VL, Desvigne-Nickens Coronary-Artery Bypass Surgery in Patients with Ischemic Cardiomyopathy. *N Engl J Med* 2016;374:1511-20 [[27040723](#)]

Velazquez EJ, Lee KL, Jones RH, Al-Khalidi HR, Hill JA, Panza JA, Michler RE, Bonow RO, Doenst T, Petrie MC, Oh JK, She L, Moore VL, Desvigne-Nickens Coronary-Artery Bypass Surgery in Patients with Ischemic Cardiomyopathy. *N Engl J Med* 2016;374:1511-20 [[27040723](#)]

**CASS subgroup, 1985:**

Passamani E, Davis KB, Gillespie MJ, Killip T A randomized trial of coronary artery bypass surgery. Survival of patients with a low ejection fraction. *N Engl J Med* 1985;312:1665-71 [[3873614](#)] [10.1056/NEJM198506273122603](#)

Alderman EL, Fisher LD, Litwin P, Kaiser GC, Myers WO, Maynard C, Levine F, Schloss M Results of coronary artery surgery in patients with poor left ventricular function (CASS). *Circulation* 1983;68:785-95 [[6352078](#)]

**ECSS (European), 1988:**

Varnauskas E Twelve-year follow-up of survival in the randomized European Coronary Surgery Study. *N Engl J Med* 1988 Aug 11;319:332-7 [[3260659](#)]

Long-term results of prospective randomised study of coronary artery bypass surgery in stable angina pectoris. European Coronary Surgery Study Group. *Lancet* 1982 Nov 27;2:1173-80 [[6128492](#)]

Coronary-artery bypass surgery in stable angina pectoris: Survival at two years. European Coronary Surgery Study Group. *Lancet* 1979 Apr 28;1:889-93 [[86665](#)]

Prospective randomised study of coronary artery bypass surgery in stable angina pectoris. Second interim report by the European Coronary Surgery Study Group. *Lancet* 1980 Sep 6;2:491-5 [[6105556](#)]

Prospective randomized study of coronary artery bypass surgery in stable angina pectoris: a progress report on survival. *Circulation* 1982 Jun;65:67-71 [[7044607](#)]



### **CASS, 1983:**

Coronary artery surgery study (CASS): a randomized trial of coronary artery bypass surgery. Survival data. *Circulation* 1983 Nov;68:939-50 [6137292]

Alderman EL, Bourassa MG, Cohen LS, Davis KB, Kaiser GG, Killip T, Mock MB, Pettinger M, Robertson TL Ten-year follow-up of survival and myocardial infarction in the randomized Coronary Artery Surgery Study. *Circulation* 1990 Nov;82:1629-46 [2225367]

Chaitman BR, Ryan TJ, Kronmal RA, Foster ED, Frommer PL, Killip T Coronary Artery Surgery Study (CASS): comparability of 10 year survival in randomized and randomizable patients. *J Am Coll Cardiol* 1990 Nov;16:1071-8 [2229750]

Coronary artery surgery study (CASS): a randomized trial of coronary artery bypass surgery. Quality of life in patients randomly assigned to treatment groups. *Circulation* 1983 Nov;68:951-60 [6137293]

Myocardial infarction and mortality in the coronary artery surgery study (CASS) randomized trial. *N Engl J Med* 1984 Mar 22;310:750-8 [6608052]

Rogers WJ, Coggin CJ, Gersh BJ, Fisher LD, Myers WO, Oberman A, Sheffield LT Ten-year follow-up of quality of life in patients randomized to receive medical therapy or coronary artery bypass graft surgery. The Coronary Artery Surgery Study (CASS) *Circulation* 1990 Nov;82:1647-58 [1977531]

### **VA, 1984:**

Eleven-year survival in the Veterans Administration randomized trial of coronary bypass surgery for stable angina. The Veterans Administration Coronary Artery Bypass Surgery Cooperative Study Group. *N Engl J Med* 1984 Nov 22;311:1333-9 [6333636]

Parisi AF, Khuri S, Deupree RH, Sharma GV, Scott SM, Luchi RJ Medical compared with surgical management of unstable angina. 5-year mortality and morbidity in the Veterans Administration Study. *Circulation* 1989 Nov;80:1176-89 [2680157]

Takaro T, Peduzzi P, Detre KM, Hultgren HN, Murphy ML, van der Bel-Kahn J, Thomsen J, Meadows WR Survival in subgroups of patients with left main coronary artery disease. Veterans Administration Cooperative Study of Surgery for Coronary Arterial Occlusive Disease. *Circulation* 1982 Jul;66:14-22 [6979435]

Eighteen-year follow-up in the Veterans Affairs Cooperative Study of Coronary Artery Bypass Surgery for stable angina. The VA Coronary Artery Bypass Surgery Cooperative Study Group. *Circulation* 1992 Jul;86:121-30 [1617765]

Murphy ML, Hultgren HN, Detre K, Thomsen J, Takaro T Treatment of chronic stable angina. A preliminary report of survival data of the randomized Veterans Administration cooperative study. *N Engl J Med* 1977 Sep 22;297:621-7 [331107]

Peduzzi P, Detre K, Gage A Veterans Administration Cooperative Study of medical versus surgical treatment for stable angina—progress report. Section 2. Design and baseline characteristics. *Prog Cardiovasc Dis* 1985 Nov-Dec;28:219-28 [3903866]

Detre K, Murphy M, Hammermeister KE, Sako Y, Meadows WR Veterans Administration Cooperative Study of medical versus surgical treatment for stable angina—progress report. Section 9. Effect of medical versus surgical treatment on resting left ventricular ejection fraction at five years. *Prog Cardiovasc Dis* 1986 Jan-Feb;28:293-9 [3511513]

Murphy ML, Meadows WR, Thomsen J, Hultgren HN, Takaro T, Fish R, Read R Veterans Administration Cooperative Study on medical versus surgical treatment for stable angina—progress report. Section 11. The effect of coronary artery bypass surgery on the incidence of myocardial infarction and hospitalization. *Prog Cardiovasc Dis* 1986 Jan-Feb;28:309-17 [3511515]

### **Texas, 1977:**

Mathur VS, Guinn GA Prospective randomized study of the surgical therapy of stable angina. *Cardiovasc Clin* 1977;8:131-44 [332367]

### **Oregon, 1979:**

Kloster FE, Kremkau EL, Ritzmann LW, Rahimtoola SH, Rsch J, Kanarek PH Coronary bypass for stable angina: a prospective randomized study. *N Engl J Med* 1979 Jan 25;300:149-57 [310511]

### **New zealand 1, 1981:**

Norris RM, Agnew TM, Brandt PW, Graham KJ, Hill DG, Kerr AR, Lowe JB, Roche AH, Whitlock RM, Barratt-Boyes BG Coronary surgery after recurrent myocardial infarction: progress of a trial comparing surgical with nonsurgical management for asymptomatic patients with advanced coronary disease. *Circulation* 1981 Apr;63:785-92 [[7471334](#)]

**MASS II, 2007:**

Hueb W, Lopes NH, Gersh BJ, Soares P, Machado LA, Jatene FB, Oliveira SA, Ramires JA Five-year follow-up of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease. *Circulation* 2007 Mar 6;115:1082-9 [[17339566](#)]

Hueb W, Soares PR, Gersh BJ, Csar LA, Luz PL, Puig LB, Martinez EM, Oliveira SA, Ramires JA The medicine, angioplasty, or surgery study (MASS-II): a randomized, controlled clinical trial of three therapeutic strategies for multivessel coronary artery disease: one-year results. *J Am Coll Cardiol* 2004;43:1743-51 [[15145093](#)]

Hueb W, Lopes N, Gersh BJ, Soares PR, Ribeiro EE, Pereira AC, Favarato D, Rocha AS, Hueb AC, Ramires JA Ten-year follow-up survival of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease. *Circulation* 2010;122:949-57 [[20733102](#)] [10.1161/CIRCULATIONAHA.109.911669](#)

**BARI 2D, 2009:**

Baseline characteristics of patients with diabetes and coronary artery disease enrolled in the Bypass Angioplasty Revascularization Investigation 2 Diabetes (BARI 2D) trial. *Am Heart J* 2008;156:528-536, 536.e1-5 [[18760137](#)]

A Randomized Trial of Therapies for Type 2 Diabetes and Coronary Artery Disease. *N Engl J Med* 2009;: [[19502645](#)]

Chaitman BR, Hardison RM, Adler D, Gebhart S, Grogan M, Ocampo S, Sopko G, Ramires JA, Schneider D, Frye RL The Bypass Angioplasty Revascularization Investigation 2 Diabetes Randomized Trial of Different Treatment Strategies in Type 2 Diabetes Mellitus With Stable Ischemic Heart Disease. Impact of Treatment Strategy on Cardiac Mortality and Myocardial Infarction. *Circulation* 2009;: [[19920001](#)]

Dagenais GR, Lu J, Faxon DP, Kent K, Lago RM, Lezama C, Hueb W, Weiss M, Slater J, Frye RL Effects of Optimal Medical Treatment With or Without Coronary Revascularization on Angina and Subsequent Revascularizations in Patients With Type 2 Diabetes Mellitus and Stable Ischemic Heart Disease. *Circulation* 2011;123:1492-1500 [[21444887](#)] [10.1161/CIRCULATIONAHA.110.978247](#)

Entry terms: Coronary Artery Bypass Surgery, Coronary Artery Bypass, Coronary Artery Bypasses, Coronary Artery Bypass Surgery, Aortocoronary Bypass, Aortocoronary Bypasses, Coronary Artery Bypass Grafting, CABG