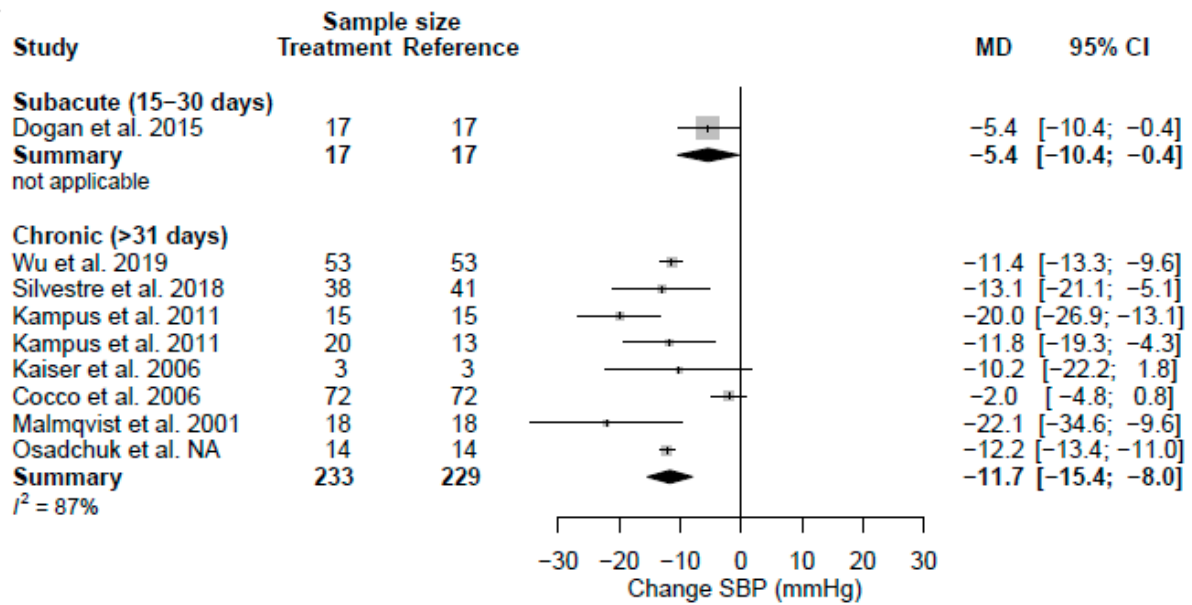


**Table S1** Literature search: strategy for PubMed (NCBI) and Embase (Ovid) databases

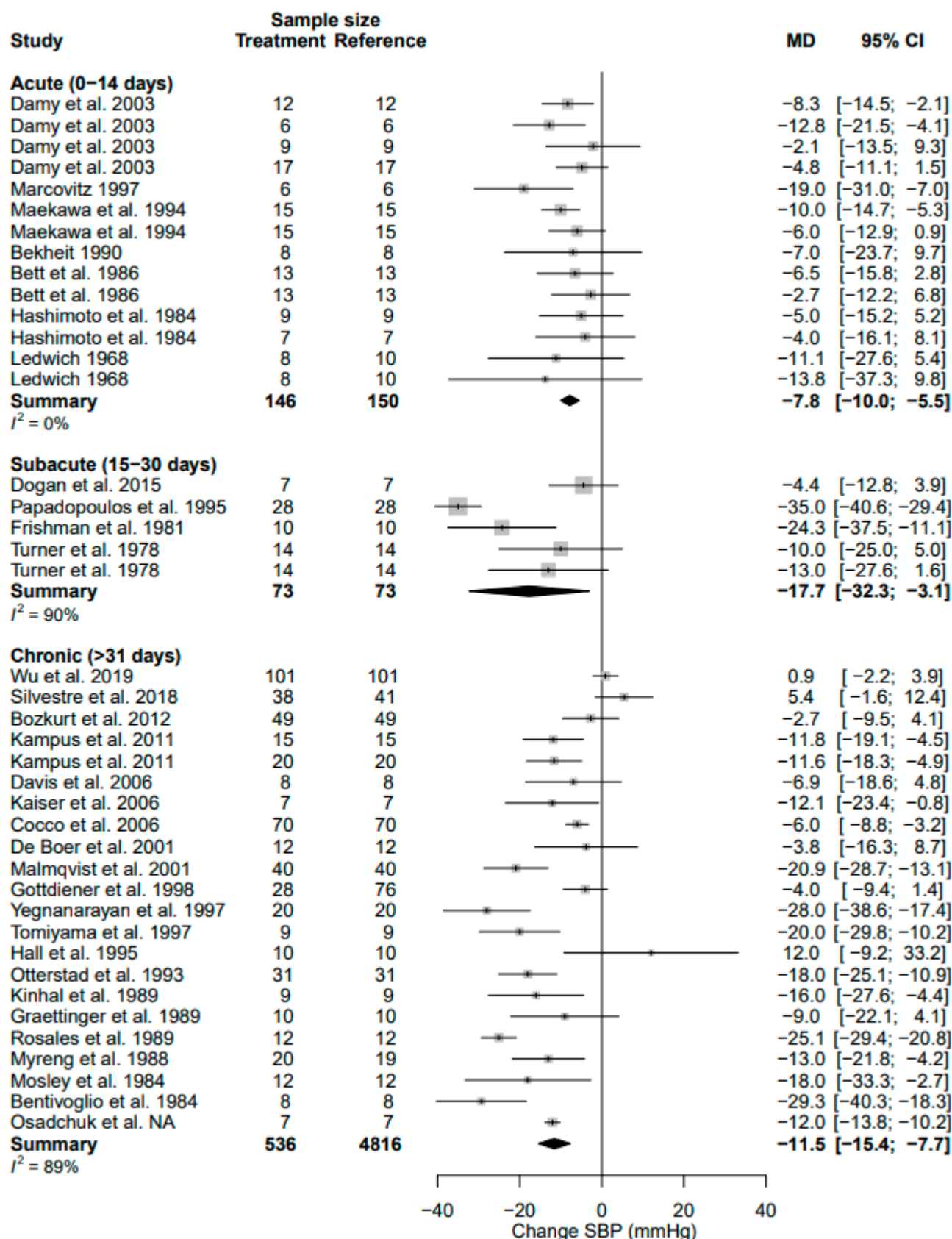
Search PubMed	Search Embase
<p><b><u>Component 1: Antihypertensive medication:</u></b> "diuretics"[Mesh] OR "adrenergic beta-antagonists"[Mesh] OR "beta blockers" [Title/Abstract] OR "Antihypertensive agents"[Mesh] OR "blood pressure lowering therapy" [Title/Abstract] OR "antihypertensive medication" [Title/Abstract] OR "antihypertensive therapy" [Title/Abstract] OR "angiotensin-converting enzyme inhibitors"[Mesh] OR "ACE inhibitors" [Title/Abstract] OR "Angiotensin receptor antagonists"[Mesh] OR "angiotensin receptor blockers" [Title/Abstract] OR "sympatholytics"[Mesh]OR "Calcium Channel Blockers"[Mesh]</p>	<p><b><u>Component 1: Antihypertensive medication</u></b></p> <p>exp diuretic agent/ or exp beta adrenergic receptor blocking agent/ or exp adrenergic receptor blocking agent/ or exp antihypertensive agent/ or exp dipeptidyl carboxypeptidase inhibitor/ or exp angiotensin receptor antagonist/ or exp calcium channel blocking agent.ti,ab.</p>
<p><b><u>Component 2: Cardiac geometry:</u></b> "ventricular remodeling"[Mesh] OR "ventricular remodeling" [Title/Abstract] OR "cardiac remodeling" [Title/Abstract] OR "cardiac adaptation" [Title/Abstract] OR "LV geometry" [Title/Abstract] OR "left ventricular geometry" [Title/Abstract] OR "cardiac geometry" [Title/Abstract] OR "cardiac dimension" [Title/Abstract] OR "left ventricle remodeling "[Title/Abstract] OR "Hypertrophy, Left Ventricular "[Mesh] OR "left ventricular hypertrophy" [Title/Abstract] OR "echocardiography"[Mesh] OR Echocardiography [Title/Abstract] OR "left ventricular mass" [Title/Abstract] OR "left ventricular mass index" [Title/Abstract] OR "relative wall thickness" [Title/Abstract] OR "concentric cardiac remodeling" [Title/Abstract] OR "eccentric cardiac remodeling" [Title/Abstract]</p>	<p><b><u>Component 2: Cardiac geometry</u></b></p> <p>exp heart ventricle remodeling/ or (ventricular remodeling or cardiac remodeling or cardiac adaptation or LV geometry or left ventricular remodeling or cardiac geometry or cardiac dimension).ti,ab. or exp echocardiography/ or echocardiography.ti,ab.</p>
<p><b><u>Component 3: Heart failure:</u></b> "Heart Failure"[Mesh] OR "Heart Failure, Systolic "[Mesh]</p>	<p><b><u>Component 3: Heart failure</u></b></p> <p>exp heart failure.ti,ab.</p>
<p><b><u>Component 4: Diastolic dysfunction:</u></b> "heart failure, diastolic"[Mesh] OR "diastolic dysfunction" [Title/Abstract]</p>	<p><b><u>Component 4: Diastolic dysfunction</u></b></p> <p>exp diastolic dysfunction/ or diastolic function.ti,ab.</p>
<p><b><u>Component 5: Myocardial infarction:</u></b> "myocardial infarction" [Mesh] OR "myocardial infarction" [Title/Abstract] OR "acute myocardial infarction" [Title/Abstract] OR "heart attack" [Title/Abstract]</p>	<p><b><u>Component 5: Myocardial infarction</u></b></p> <p>exp heart infarction.ti,ab.</p>

**Component 6: CVA:** Stroke [Mesh] OR “cerebrovascular accident” [Title/Abstract] OR **Component 6: CVA**  
“acute cerebrovascular accident” [Title/Abstract] OR “acute cerebrovascular insult” exp cerebrovascular accident.ti,ab.  
[Title/Abstract]

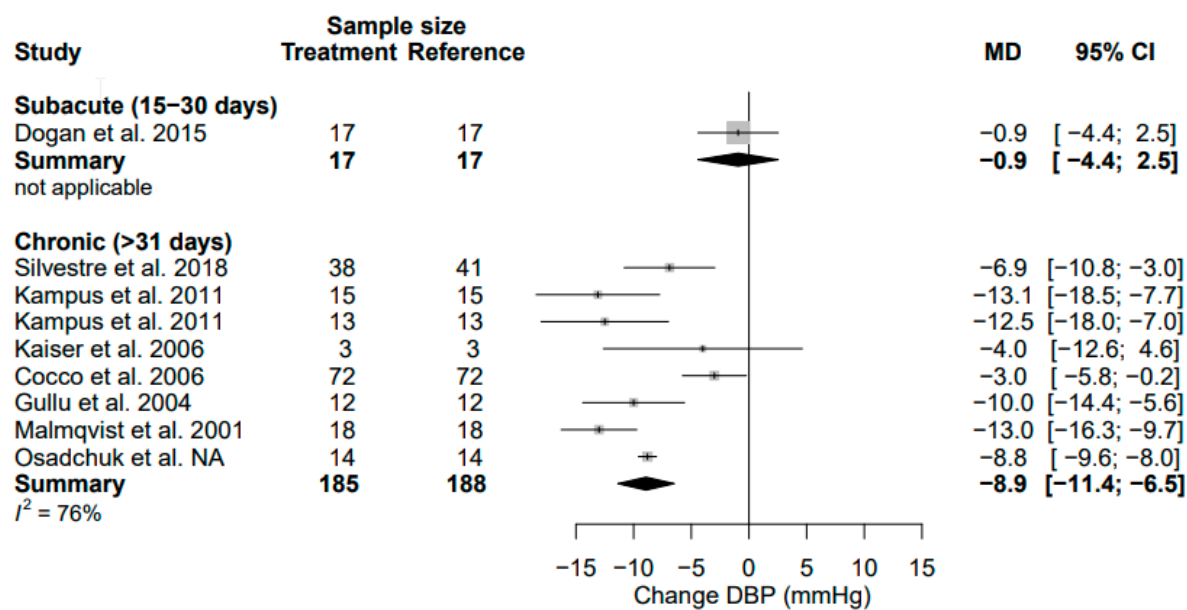
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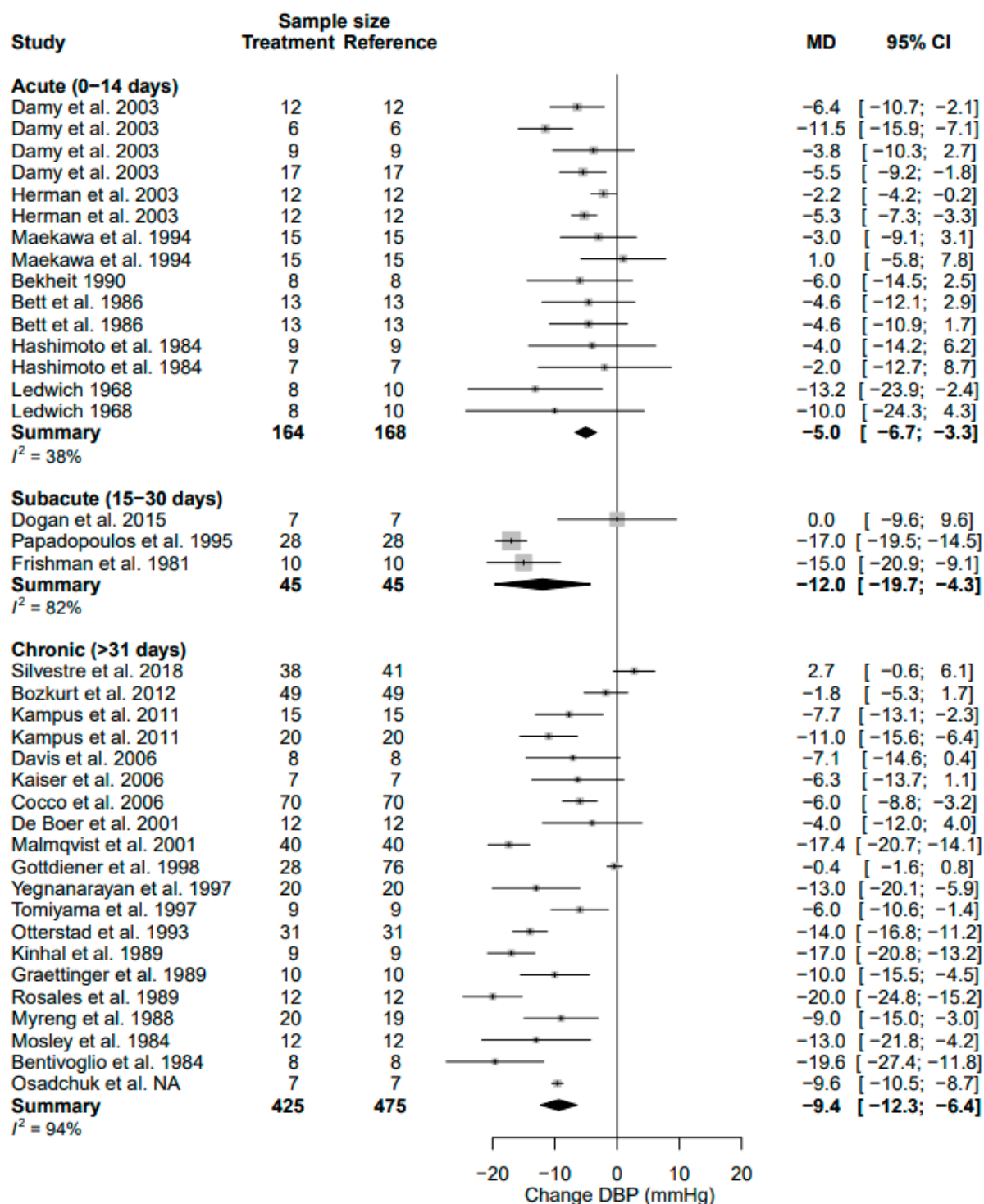
**Figure S1** Forest plot of systolic blood pressure (SBP) change in mmHg after sub-acute and chronic beta-blocker use compared to baseline for females. MD = mean difference.



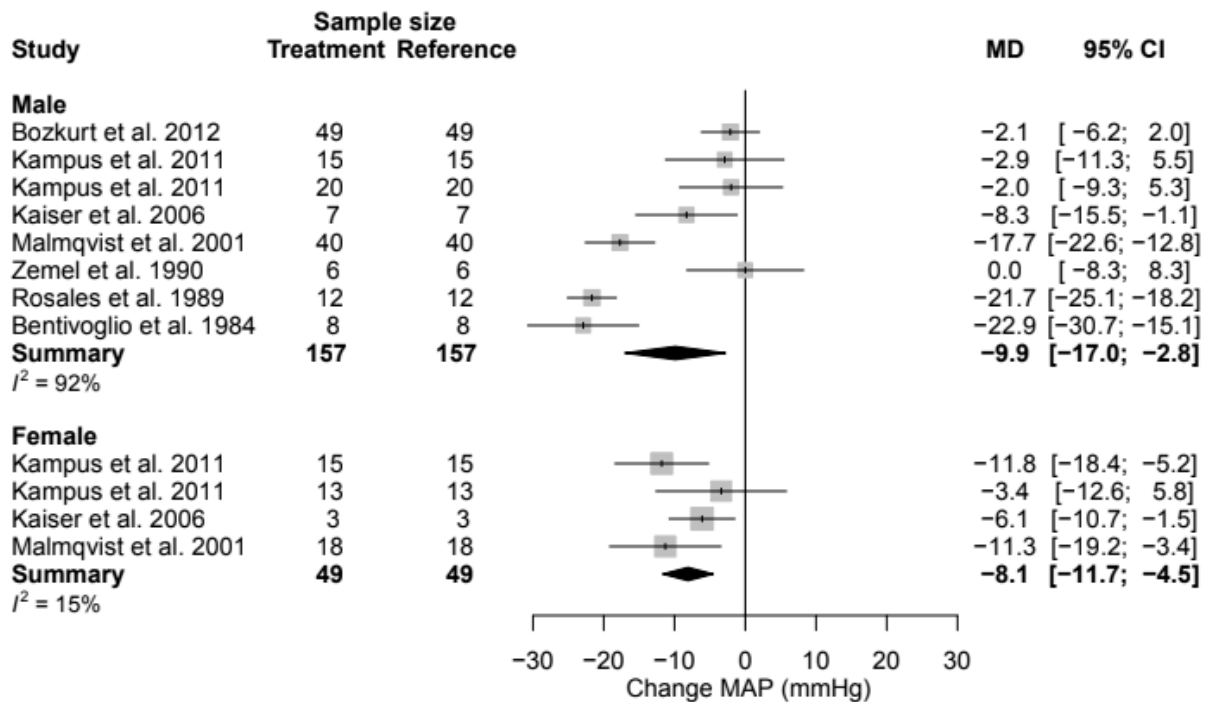
**Figure S2** Forest plot of systolic blood pressure (SBP) change in mmHg after acute, sub-acute and chronic beta-blocker use compared to baseline for males. MD = mean difference.



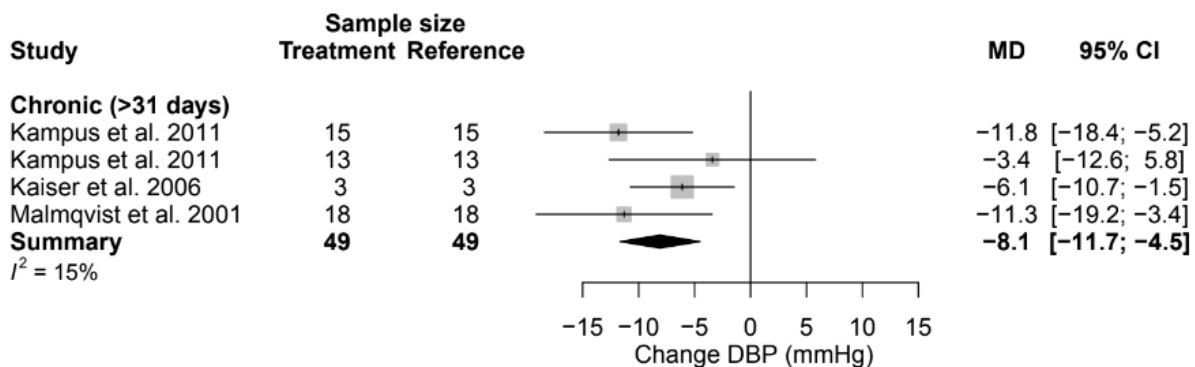
**Figure S3** Forest plot of diastolic blood pressure (DBP) change in mmHg after sub-acute and chronic beta-blocker use compared to baseline for females. MD = mean difference.



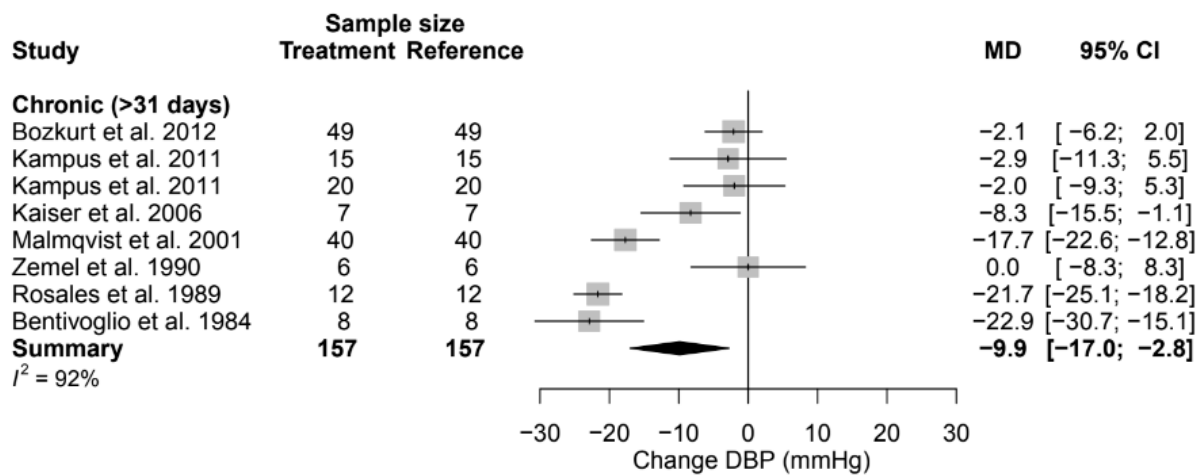
**Figure S4** Forest plot of diastolic blood pressure (DBP) change in mmHg after acute, sub-acute and chronic beta-blocker use compared to baseline for males. MD = mean difference.



**Figure S5** Forest plot of mean arterial pressure (MAP) change in mmHg after beta-blocker use compared to baseline for females and males. MD = mean difference.



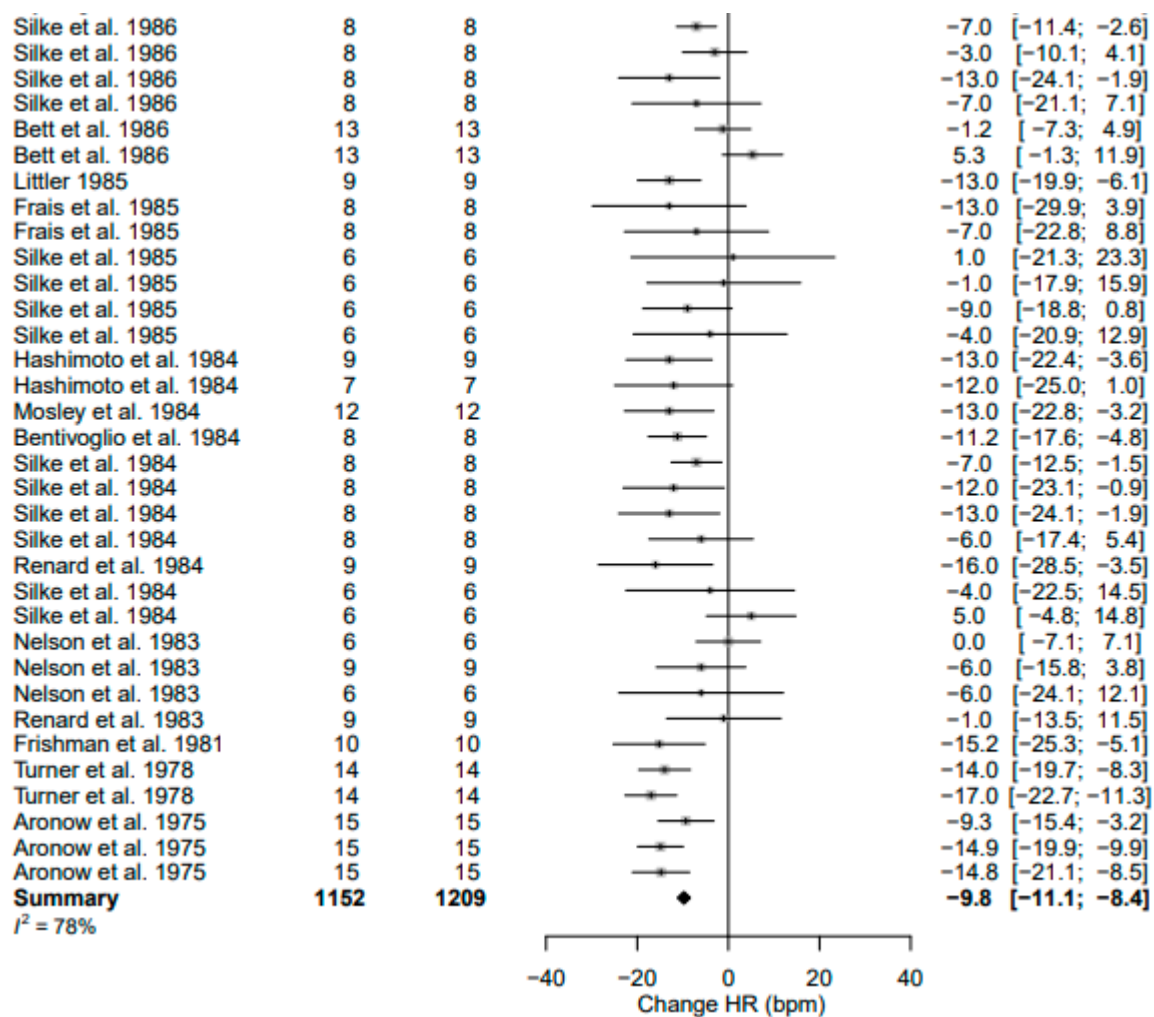
**Figure S6** Forest plot of mean arterial pressure (MAP) change in mmHg after acute, sub-acute and chronic beta-blocker use compared to baseline for females. MD = mean difference.



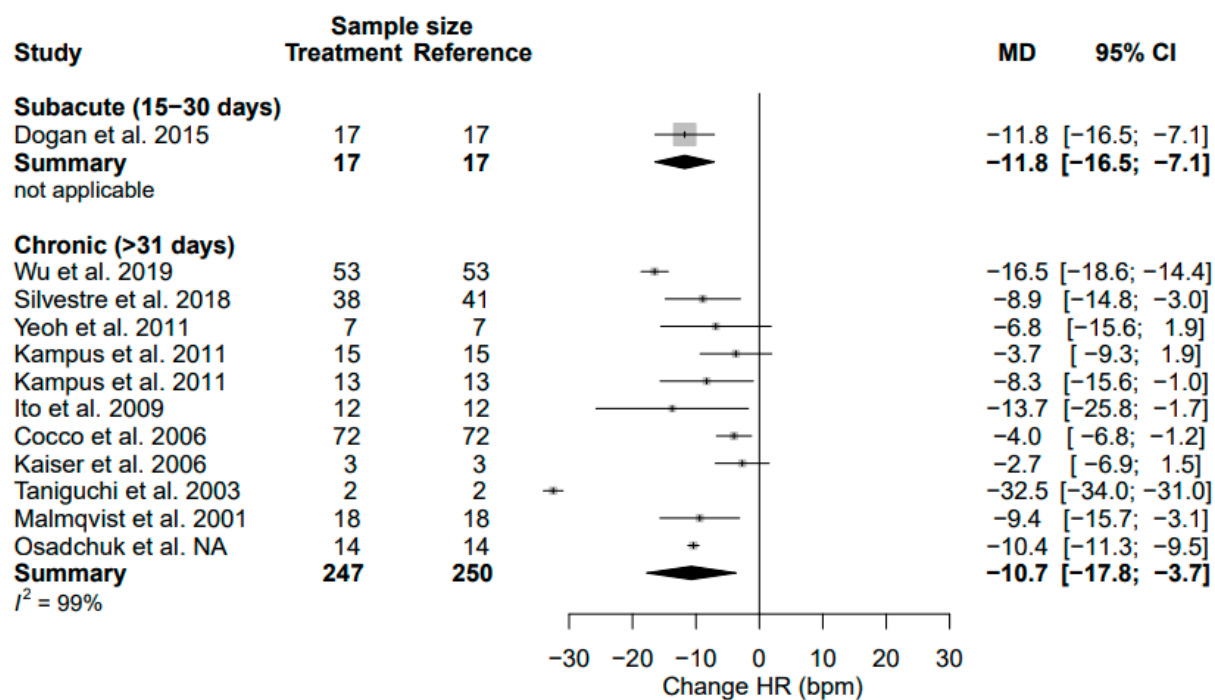
**Figure S7** Forest plot of mean arterial pressure (MAP) change in mmHg after acute, sub-acute and chronic beta-blocker use compared to baseline for males. MD = mean difference.



Study	Sample size Treatment	Sample size Reference	MD	95% CI
<b>Female</b>				
Wu et al. 2019	53	53	-16.5	[-18.6; -14.4]
Silvestre et al. 2018	38	41	-8.9	[-14.8; -3.0]
Dogan et al. 2015	17	17	-11.8	[-16.5; -7.1]
Yeoh et al. 2011	7	7	-6.8	[-15.6; 1.9]
Kampus et al. 2011	15	15	-3.7	[-9.3; 1.9]
Kampus et al. 2011	13	13	-8.3	[-15.6; -1.0]
Ito et al. 2009	12	12	-13.7	[-25.8; -1.7]
Cocco et al. 2006	72	72	-4.0	[-6.8; -1.2]
Kaiser et al. 2006	3	3	-2.7	[-6.9; 1.5]
Taniguchi et al. 2003	2	2	-32.5	[-34.0; -31.0]
Malmqvist et al. 2001	18	18	-9.4	[-15.7; -3.1]
Osadchuk et al. NA	14	14	-10.4	[-11.3; -9.5]
<b>Summary</b>	<b>264</b>	<b>267</b>	<b>-10.8</b>	<b>[-17.4; -4.2]</b>
$I^2 = 98\%$				
<b>Male</b>				
Wu et al. 2019	101	101	-18.6	[-20.0; -17.2]
Silvestre et al. 2018	38	41	-7.8	[-11.2; -4.4]
Dogan et al. 2015	7	7	-11.1	[-20.0; -2.3]
Bozkurt et al. 2012	49	49	-12.8	[-17.1; -8.5]
Yeoh et al. 2011	9	9	-3.2	[-13.2; 6.7]
Kampus et al. 2011	15	15	-8.6	[-14.5; -2.7]
Kampus et al. 2011	20	20	-3.5	[-9.0; 2.0]
Ito et al. 2009	7	7	-6.4	[-22.9; 10.0]
Davis et al. 2006	8	8	-13.1	[-20.2; -6.0]
Cocco et al. 2006	70	70	-18.0	[-20.8; -15.2]
Kaiser et al. 2006	7	7	-3.2	[-13.0; 6.6]
Damy et al. 2003	12	12	-11.3	[-17.3; -5.3]
Damy et al. 2003	6	6	-9.5	[-19.2; 0.2]
Damy et al. 2003	9	9	-9.1	[-13.7; -4.5]
Damy et al. 2003	17	17	-7.7	[-11.1; -4.3]
Herman et al. 2003	12	12	-6.8	[-8.9; -4.7]
Herman et al. 2003	12	12	-14.8	[-16.8; -12.8]
Taniguchi et al. 2003	4	4	-8.8	[-28.6; 11.1]
Taniguchi et al. 2003	3	3	-27.7	[-39.3; -16.0]
Taniguchi et al. 2003	1	1	-46.0	
Taniguchi et al. 2003	1	1	-11.0	
Taniguchi et al. 2003	1	1	-14.0	
Ridha et al. 2002	15	15	-16.0	[-22.9; -9.1]
Bennett et al. 2002	12	12	-17.0	[-24.6; -9.4]
De Boer et al. 2001	12	12	-13.1	[-22.3; -3.9]
Kaye et al. 2001	10	10	-16.0	[-30.1; -1.9]
Malmqvist et al. 2001	40	40	-7.4	[-11.1; -3.7]
Gottdiener et al. 1998	28	76	-1.5	[-7.0; 4.0]
Marcovitz et al. 1997	6	6	-16.0	[-23.4; -8.6]
Silke et al. 1997	9	9	-1.4	[-7.6; 4.8]
Silke et al. 1997	9	9	2.5	[-4.9; 9.9]
Papadopoulos et al. 1995	28	28	-11.0	[-14.9; -7.1]
Hall et al. 1995	14	14	-13.0	[-22.6; -3.4]
Heesch et al. 1995	15	15	-9.0	[-20.6; 2.6]
Heesch et al. 1995	15	15	-15.0	[-27.2; -2.8]
Maekawa et al. 1994	15	15	-2.0	[-7.2; 3.2]
Maekawa et al. 1994	15	15	-8.0	[-12.7; -3.3]
Ishida et al. 1993	6	9	1.8	[-7.4; 11.0]
Otterstad et al. 1993	31	31	-12.0	[-17.5; -6.5]
Kyriakides et al. 1992	28	28	-9.0	[-14.6; -3.4]
Bekheit 1990	8	8	-19.4	[-37.6; -1.2]
Brune et al. 1990	10	10	-14.0	[-23.0; -5.0]
Todd et al. 1990	20	20	-17.0	[-23.3; -10.7]
Eichhorn et al. 1990	15	15	-9.0	[-20.6; 2.6]
Kronenberg et al. 1990	10	10	-11.0	[-25.1; 3.1]
Kinhal et al. 1989	9	9	-15.0	[-21.0; -9.0]
Graettinger et al. 1989	10	10	-5.0	[-9.4; -0.6]
Myreng et al. 1988	20	20	-15.0	[-20.9; -9.1]

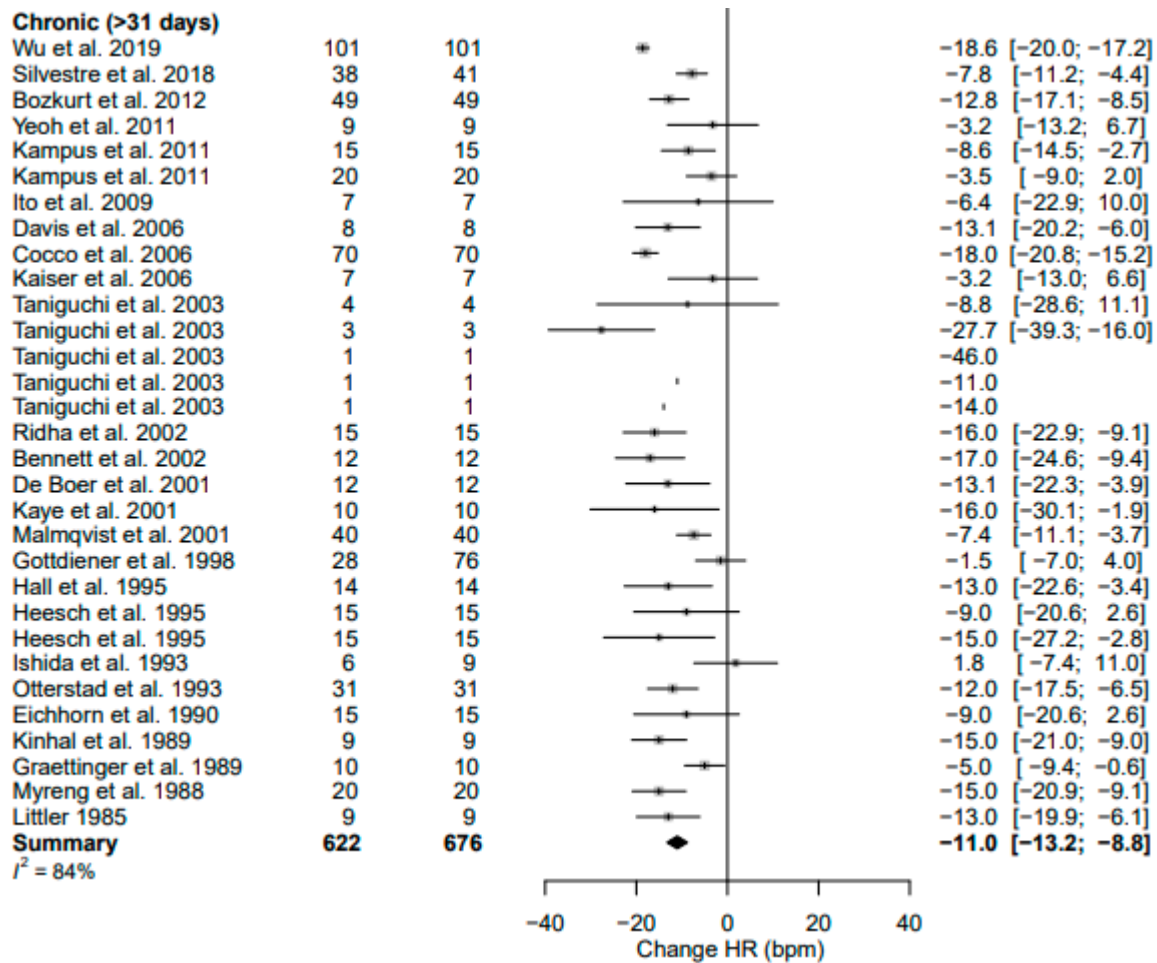


**Figure S8** Forest plot of heart rate (HR) change in beats per minute (bpm) after beta-blocker use compared to baseline for females and males. MD = mean difference.

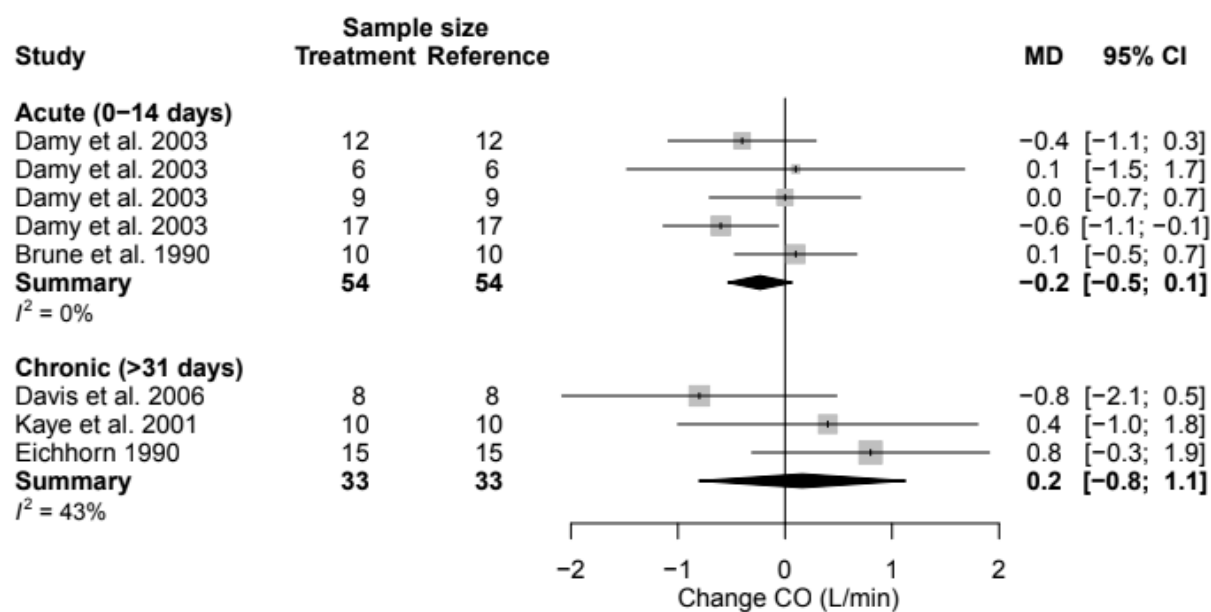


**Figure S9** Forest plot of heart rate (HR) change in beats per minute (bpm) after sub-acute and chronic be-ta-blocker use compared to baseline for females. MD = mean difference.

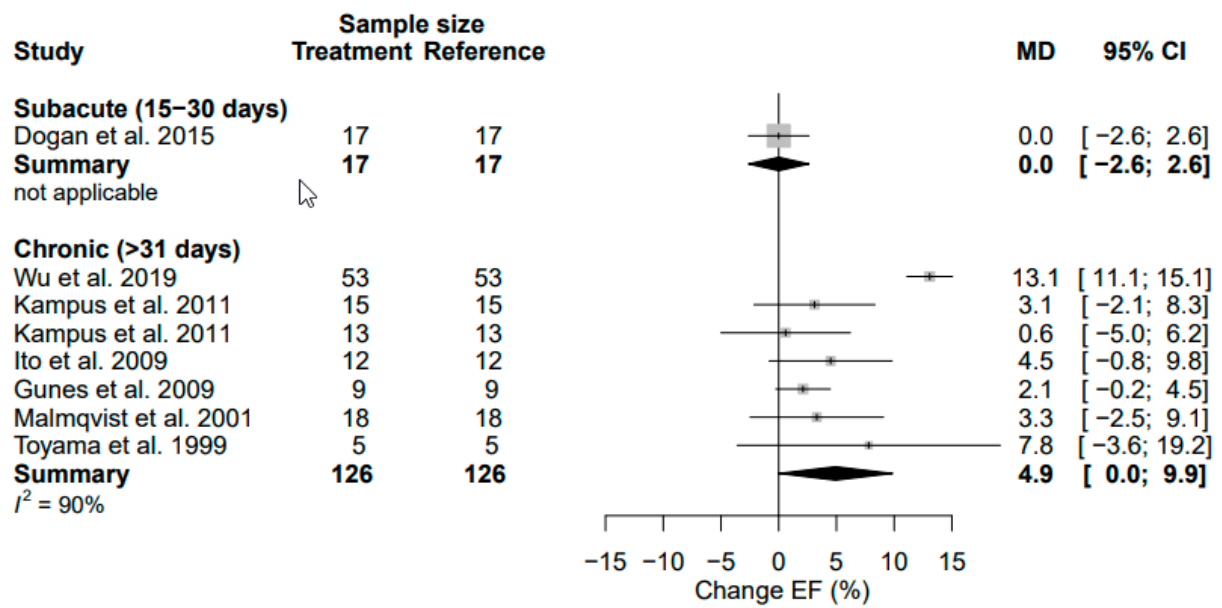
Study	Sample size			MD	95% CI
	Treatment	Reference			
<b>Acute (0–14 days)</b>					
Damy et al. 2003	12	12		-11.3	[-17.3; -5.3]
Damy et al. 2003	6	6		-9.5	[-19.2; 0.2]
Damy et al. 2003	9	9		-9.1	[-13.7; -4.5]
Damy et al. 2003	17	17		-7.7	[-11.1; -4.3]
Herman et al. 2003	12	12		-6.8	[-8.9; -4.7]
Herman et al. 2003	12	12		-14.8	[-16.8; -12.8]
Marcovitz et al. 1997	6	6		-16.0	[-23.4; -8.6]
Silke et al. 1997	9	9		-1.4	[-7.6; 4.8]
Silke et al. 1997	9	9		2.5	[-4.9; 9.9]
Maekawa et al. 1994	15	15		-2.0	[-7.2; 3.2]
Maekawa et al. 1994	15	15		-8.0	[-12.7; -3.3]
Kyriakides et al. 1992	28	28		-9.0	[-14.6; -3.4]
Bekheit 1990	8	8		-19.4	[-37.6; -1.2]
Brune et al. 1990	10	10		-14.0	[-23.0; -5.0]
Todd et al. 1990	20	20		-17.0	[-23.3; -10.7]
Kronenberg et al. 1990	10	10		-11.0	[-25.1; 3.1]
Silke et al. 1986	8	8		-7.0	[-11.4; -2.6]
Silke et al. 1986	8	8		-3.0	[-10.1; 4.1]
Silke et al. 1986	8	8		-13.0	[-24.1; -1.9]
Silke et al. 1986	8	8		-7.0	[-21.1; 7.1]
Bett et al. 1986	13	13		-1.2	[-7.3; 4.9]
Bett et al. 1986	13	13		5.3	[-1.3; 11.9]
Frais et al. 1985	8	8		-13.0	[-29.9; 3.9]
Frais et al. 1985	8	8		-7.0	[-22.8; 8.8]
Silke et al. 1985	6	6		1.0	[-21.3; 23.3]
Silke et al. 1985	6	6		-1.0	[-17.9; 15.9]
Silke et al. 1985	6	6		-9.0	[-18.8; 0.8]
Silke et al. 1985	6	6		-4.0	[-20.9; 12.9]
Hashimoto et al. 1984	9	9		-13.0	[-22.4; -3.6]
Hashimoto et al. 1984	7	7		-12.0	[-25.0; 1.0]
Silke et al. 1984	8	8		-7.0	[-12.5; -1.5]
Silke et al. 1984	8	8		-12.0	[-23.1; -0.9]
Silke et al. 1984	8	8		-13.0	[-24.1; -1.9]
Silke et al. 1984	8	8		-6.0	[-17.4; 5.4]
Renard et al. 1984	9	9		-16.0	[-28.5; -3.5]
Silke et al. 1984	6	6		-4.0	[-22.5; 14.5]
Silke et al. 1984	6	6		5.0	[-4.8; 14.8]
Nelson et al. 1983	6	6		0.0	[-7.1; 7.1]
Nelson et al. 1983	9	9		-6.0	[-15.8; 3.8]
Nelson et al. 1983	6	6		-6.0	[-24.1; 12.1]
Renard et al. 1983	9	9		-1.0	[-13.5; 11.5]
Aronow et al. 1975	15	15		-9.3	[-15.4; -3.2]
Aronow et al. 1975	15	15		-14.9	[-19.9; -9.9]
Aronow et al. 1975	15	15		-14.8	[-21.1; -8.5]
Ledwich 1968	9	10		-14.3	[-30.4; 1.9]
Ledwich 1968	8	10		-30.1	[-44.3; -15.9]
<b>Summary</b>	<b>457</b>	<b>460</b>		<b>-8.2</b>	<b>[-10.1; -6.4]</b>
$I^2 = 68\%$					
<b>Subacute (15–30 days)</b>					
Dogan et al. 2015	7	7		-11.1	[-20.0; -2.3]
Papadopoulos et al. 1995	28	28		-11.0	[-14.9; -7.1]
Frishman et al. 1981	10	10		-15.2	[-25.3; -5.1]
Turner et al. 1978	14	14		-14.0	[-19.7; -8.3]
Turner et al. 1978	14	14		-17.0	[-22.7; -11.3]
<b>Summary</b>	<b>73</b>	<b>73</b>		<b>-13.1</b>	<b>[-15.7; -10.6]</b>
$I^2 = 0\%$					



**Figure S10** Forest plot of heart rate (HR) change in beat per minute (bpm) after acute, sub-acute and chronic beta-blocker use compared to baseline for males. MD = mean difference.

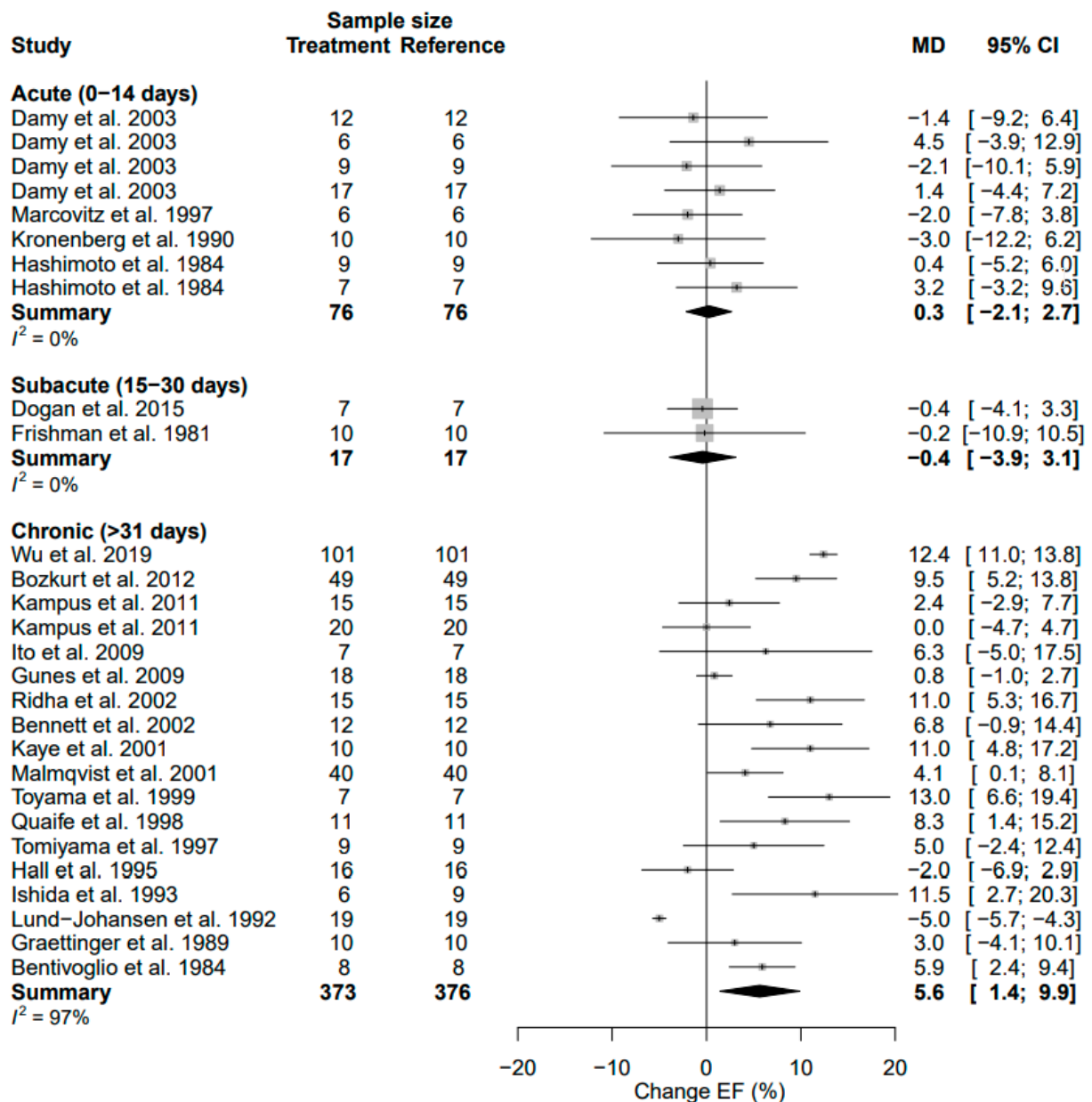


**Figure S11** Forest plot of cardiac output (CO) change in liter per minute (L/min) after acute and chronic be-ta-blocker use compared to baseline for males. MD = mean difference.



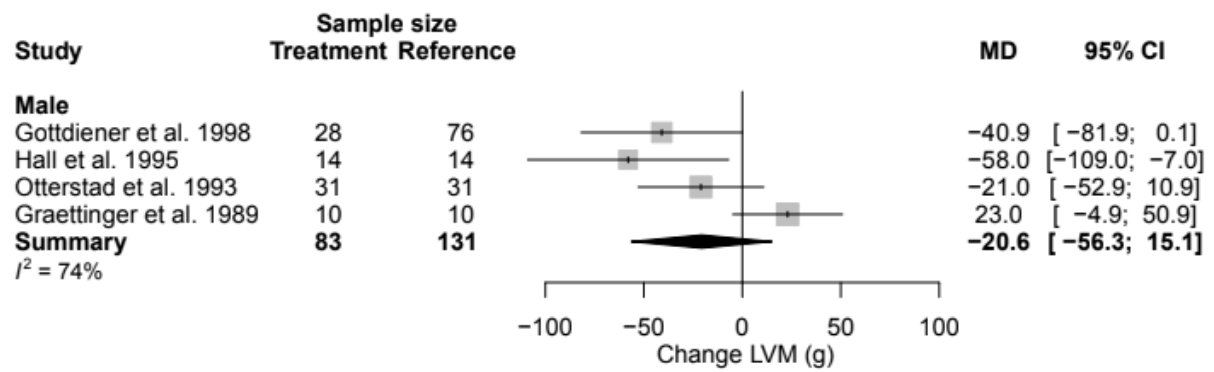
**Figure S12** Forest plot of left ventricular ejection fraction (LVEF) change in % after sub-acute and chronic be-ta-blocker use compared to baseline for females. MD = mean difference.





**Figure S13** Forest plot of left ventricular ejection fraction (LVEF) change in % after acute, sub-acute and chronic beta-blocker use compared to baseline for males. MD = mean difference.





**Figure S14** Forest plot of left ventricular mass (LVM) change in grams after beta-blocker use compared to baseline for females and males. MD = mean difference.