Supplementary Online Content

Blumenthal JA, Babyak MA, O'Connor C, et al. Effects of Exercise Training on Depressive Symptoms in Patients With Chronic Heart Failure. JAMA. 2012;307(3):DOI:10.1001/jama.2012.8720

eTable. Detailed Background Demographic and Clinical Characteristics of Sample

eFigure. Association Between Change in BDI-II From Baseline to 3 Months and All-Cause Hospitalization or Death After the 3-Month Time Point

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable. Detailed background demographic and clinical characteristics of sample

	N with nonmissing data	Exercise (N = 1158)			Usual Care (N = 1164)		
		BDI-II < 14 (N=821)	BDI-II > 14 (N=337)	All Exercise Participants	BDI-II < 14 (N=848)	BDI-II > 14 (N=316)	All Usual Care Participants
Age [Years]	2322	61 (52,69)	56 (50,64)	59 (51,68)	61 (53,69)	56 (47,63)	59 (51,68)
Race :	2288						
Black		32% (262)	35% (115)	33%(377)	30% (254)	37% (116)	33%(377)
White		62% (503)	59% (194)	61%(697)	64% (539)	59% (184)	61%(697)
Other		5% (43)	7% (22)	6%(65)	5% (45)	4% (11)	6%(65)
Sex : Women	2322	31% (252)	28% (94)	30%(346)	26% (220)	28% (90)	30%(346)
Region : US	2322	88% (723)	90% (303)	89%(1026)	88% (744)	92% (292)	89%(1026)
Marital :	2315						
Married		59% (481)	53% (178)	57%(659)	61% (513)	52% (165)	58%(678)
Widowed		9% (77)	8% (28)	9%(105)	10% (87)	9% (28)	10%(115)
Divorced		13% (106)	17% (58)	14%(164)	14% (120)	15% (47)	14%(167)
Separated		4% (30)	5% (16)	4%(46)	3% (25)	4% (13)	3%(38)
Single		12% (95)	12% (40)	12%(135)	9% (75)	16% (50)	11%(125)
Cohabitate		3% (25)	4% (14)	3%(39)	3% (22)	3% (9)	3%(31)
Refused		0% (4)	1% (3)	1%(7)	0% (3)	1% (3)	1%(6)
Education :	2271						
< HS		11% (90)	15% (48)	12%(138)	11% (95)	16% (50)	13%(145)
HS		26% (208)	27% (89)	26%(297)	28% (236)	32% (100)	29%(336)
Some College		27% (213)	27% (89)	27%(302)	28% (229)	24% (76)	27%(305)
AD		9% (71)	8% (27)	9%(98)	9% (71)	10% (31)	9%(102)
BA		19% (153)	13% (43)	17%(196)	15% (126)	11% (34)	14%(160)
Grad School		8% (68)	9% (30)	9%(98)	9% (74)	6% (20)	8%(94)
Income : > $25K	2067	62% (460)	52% (156)	59%(616)	62% (459)	50% (144)	59%(603)
BDI-II at Study Entry	2322	6(4,9)	20(16,25)	8(5,15)	6(3,9)	20(17,25)	8(4,15)
Peak VO$_2$ during Treadmill [mL/kg/min]	2268	15(12,18)	14(11,17)	14(11,18)	15(12,18)	14(11,17)	14(12,18)
Treadmill Test Duration [Minutes]	2301	9.9 (7.0,12.0)	8.8 (6.4,11.4)	9.5 (6.8,12.0)	10.0 (7.1,12.7)	9.0 (6.3,11.6)	9.7 (7.0,12.2)
Body Mass Index [Kg/m^2]	2316	30 (26,34)	31 (27,36)	30 (26,35)	29 (26,34)	32 (27,37)	30 (26,35)
Diabetes	2322	32% (261)	35% (117)	33%(378)	30% (255)	36% (115)	32%(370)
Hypertension	2309	62% (504)	61% (207)	62%(711)	57% (483)	61% (190)	58%(673)
Smoking :	2311						
Never		40% (323)	31% (104)	37%(427)	39% (326)	35% (111)	38%(437)
Current		14% (116)	20% (68)	16%(184)	16% (133)	21% (66)	17%(199)
Quit		46% (378)	49% (165)	47%(543)	46% (384)	44% (137)	45%(521)
NYHA Class : Class III or IV	2322	31% (258)	53% (177)	38%(435)	32% (269)	47% (147)	36%(416)
Angina class :	2319						
None		85% (694)	78% (261)	83%(955)	87% (735)	80% (252)	85%(987)
I		8% (63)	13% (42)	9%(105)	8% (70)	8% (25)	8%(95)

	N						
II or greater		8% (64)	10% (32)	8%(96)	5% (42)	12% (39)	7%(81)
CHF Etiology : Non-Ischemic	2322	49% (399)	48% (162)	48%(561)	47% (396)	55% (173)	49%(569)
LVEF	2318	25(20,30)	25(20,30)	25(20,30)	25(20,30)	25(20,30)	25(20,30)
Six Minute Walk Distance [meters]	2271	377(300,442)	351(279,420)	366(296,436)	380(310,440)	354(266,)420	373(300,432)
High Mitral Valve Regurgitation	2129	11% (81)	14% (42)	12%(123)	11% (88)	15% (44)	12%(132)
Ventricular Conduction :	2263						
Normal		44% (352)	42% (137)	43%(489)	44% (360)	41% (127)	43%(487)
LBBB		17% (133)	16% (52)	16%(185)	17% (139)	17% (53)	17%(192)
RBBB		4% (35)	3% (11)	4%(46)	3% (26)	4% (12)	3%(38)
IVCD		11% (89)	15% (50)	12%(139)	12% (99)	17% (53)	13%(152)
Paced		24% (196)	24% (78)	24%(274)	24% (199)	20% (62)	23%(261)
Kansas City Cardiomyopathy Questionnaire Score (KCCQ)	2322	75(61,86)	48(37,62)	68(50,82)	76(61,88))	48 (36,58)	69(52,84)
Weber Score 1	2268	13% (108)	10% (32)	12%(140)	16% (130)	11% (35)	15%(165)
2		25% (204)	21% (68)	24%(272)	22% (183)	24% (73)	23%(256)
3		47% (379)	52% (170)	49%(549)	49% (406)	46% (141)	48%(547)
4		14% (113)	17% (57)	15%(170)	13% (109)	19% (60)	15%(169)
Blood Urea Nitrogen	2020	21(16,28)	18(15,28)	20(15,28)	19(15,28)	21(15,29)	21(15,28)
Beta Blockade Dose [mg/day]	2302	25(13,50)	50(13,50)	38(13,50)	28 (13,50)	25(13,50)	25(13,50)
Loop Diuretic Dose [mg/day]	2289	40(1,80)	40(20,80)	40(20,80)	40(20,80)	40(20,80)	40(20,80)
SSRI Antidepressant	2322	9% (75)	22% (75)	13%(150)	11% (93)	23% (73)	14%(166)
Tricyclic Antidepressant	2322	3% (22)	4% (13)	3%(35)	1% (12)	5% (17)	2%(29)
Other Antidepressant	2322	4% (34)	9% (29)	5%(63)	5% (44)	12% (39)	7%(83)

Note: Values are median (25th, 75th percentile) for continuous variables and % (N) of category

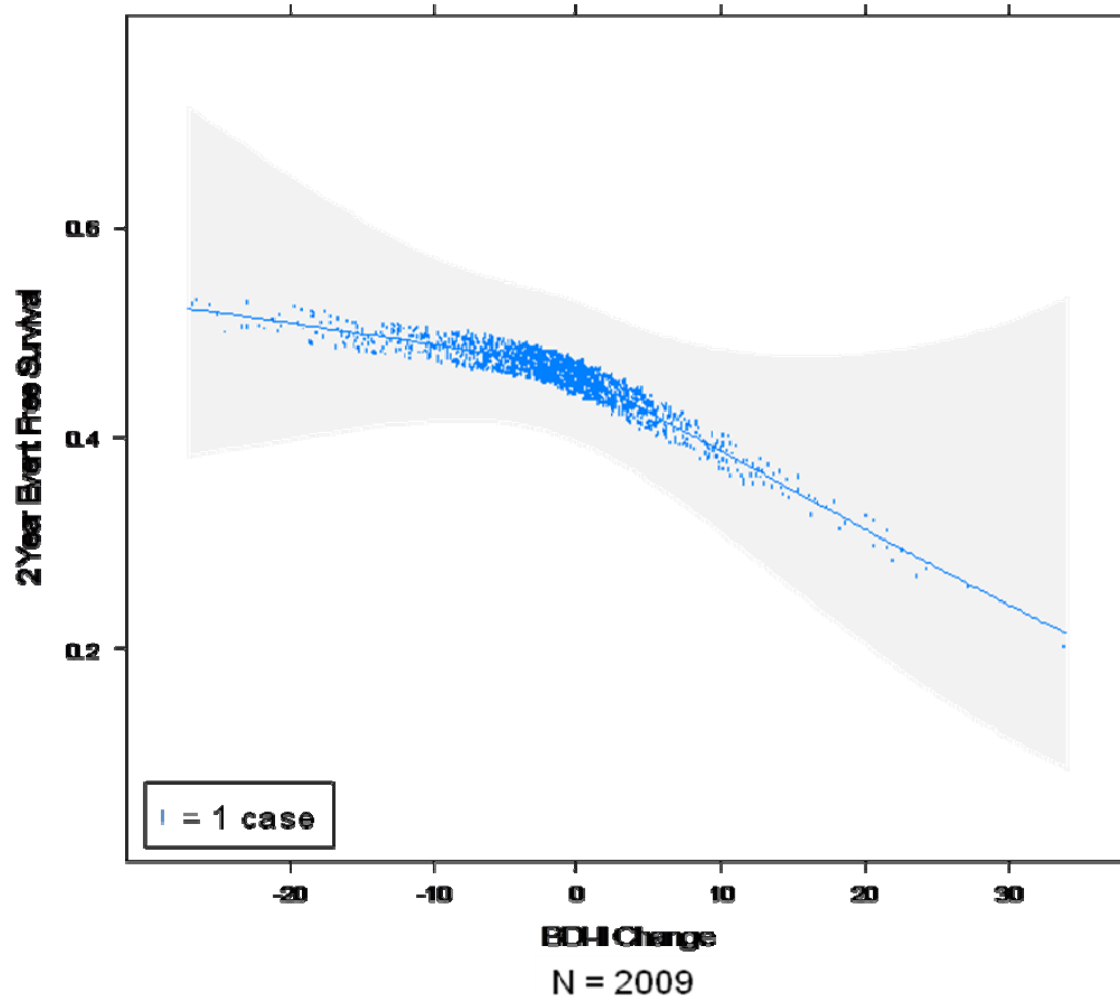BDI-II: Beck Depression Inventory II (range 0-63), with higher scores indicating greater depressive symptoms

NYHA: New York Heart Association

LVEF: Left ventricular ejection fraction

KCCQ: The Kansas City Cardiomyopathy Questionnaire is a 23-item scale in which the range of scores is 0-100 with higher scores representing better health

Weber score ranges from 1 to 4, with lower scores representing higher cardiopulmonary fitness (peak VO$_2$).

eFigure. Association Between Change in BDI-II From Baseline to 3 Months and All-Cause Hospitalization or Death After the 3-Month Time Point

Change in BDI-II was modeled using a 3-knot restricted cubic spline in the Cox regression model described in the text. Shaded region represents 95% confidence interval. Tick marks display data density with respect to change in BDI-II scores. Tick marks are drawn at actual BDI-II change values for each patient (case) along the fitted regression line and are jittered vertically along the fitted line to display density more clearly. Only events that occurred after the end of the 3-month treatment period were included in the analysis. If a participant experienced a hospitalization during the 3-month treatment period, we ignored that event and used the first event after the conclusion of the treatment period. Based on prior work (see Sherwood et al., 2011 reference #32), we expected that the association between change in BDI-II and events would be strongest among those participants with worsening depressive symptoms. We therefore examined two local HRs along the fitted curve, using the predicted event probability generated by the Cox model: one HR compared a typical participant who improved by 10 points on the BDI-II to a participant with a change score of 0; a second compared a participant with a 10 point worsening on the BDI-II compared to a participant with a change score of 0. The HR for an improvement of 10 points on the BDI-II compared to a change of 0 was 0.92, but the confidence interval contained 1.0 (95% CI= 0.79, 1.06); the HR for BDI-II worsening by 10 points compared to a change of 0 was 1.21 (95% CI= 1.03, 1.43).