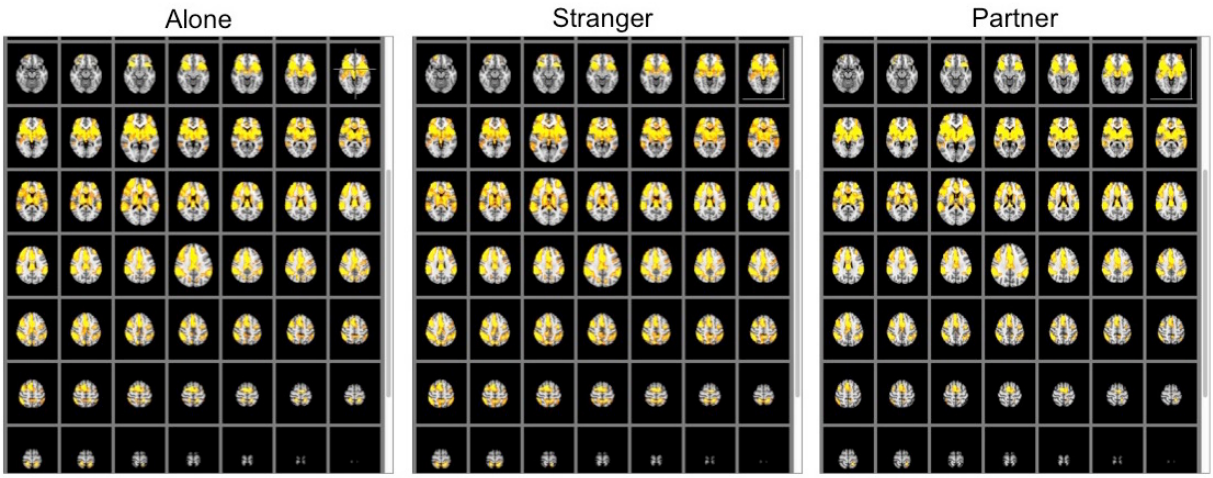
Supplementary Results

Supplementary Figure 1 depicts lightbox images showing significant activation in the threat-safe contrast across the brain.



Supplementary Table 1

Significant clusters of activity for the main effect of handholding using the stranger threat-safe mask (MFG = Middle Frontal Gyrus, PPL = Posterior Parietal Lobe, ACC = Anterior Cingulate Cortex, PCC = Posterior Cingulate Cortex)

			MNI Coordinates		
Labels	Voxels	MAX	MAX X (mm)	MAX Y (mm)	MAX Z (mm)
Alone minus Partner					
Right MFG	31	4.19	36	40	26
Right MFG	22	4.54	32	30	22
Stranger minus Partner					
Right MFG	1500	5.19	32	40	20
Right PPL	897	5.08	36	-54	50
Right ACC	116	4.08	0	6	46
Precuneous	43	4.07	16	-70	42
Frontal Pole	33	3.48	36	56	4
PCC	3	4.34	12	-34	46

Supplementary Table 2

Significant clusters of activity for the main effect of handholding using the partner threat-safe mask (MFG = Middle Frontal Gyrus, PPL = Posterior Parietal Lobe, IFG = Inferior Frontal Gyrus, ACC = Anterior Cingulate Cortex, PCC = Posterior Cingulate Cortex)

			MNI Coordinates		
Label	Voxels	MAX	MAX X (mm)	MAX Y (mm)	MAX Z (mm)
Stranger minus Partner					
Right MFG	247	5.19	32	40	20
Right PPL	189	5.08	36	-54	50
Right IFG	78	3.96	48	18	28
Right MFG	13	3.51	44	2	54
Motor Cortex	4	3.29	42	6	34
Right MFG	2	3.34	40	2	46

Method and Results for ROI Analysis Using Coan et al., 2006 ROIs

In order to examine the degree to which the current results comport with Coan et al.'s (2006) findings in highly satisfied married couples we made $10mm^3$ masks around coordinates reported in Coan et al. (2006) in significant regions of interest. We then took mean percent signal change from the current sample in each condition and conducted ANCOVA tests with MSPSS as a covariate, relationship status as a between-subjects factor, and handholding condition as a within-subjects factor in JASP for each ROI. Supplementary Table 3 shows all tested regions of interest and indicates which ROIs were significant in either the main effect of handholding or the interaction between handholding and MSPSS. No effects of relationship status were detected.

Main Effect of Handholding

Significant main effects of handholding were detected in supplementary motor cortex (SMC; 4, 4, 50), right dorsolateral prefrontal cortex (dlPFC; 33, 33, 31), and right anterior insula (39, 19, -1). SMC effects indicate a main effect of handholding, $F(2, 210) = 3.3$, $p = .04$, $\eta^2 = .03$. Paired comparisons revealed no significant differences between the alone (M = .29, SE = .05) and stranger (M = .34, SE = .05) conditions, $t(109) = -0.9$, $p = .36$, nor between the alone and partner (M = .21, SE = .04) conditions, $t(109) = 1.6$, $p = .11$, but there was a significant difference between the stranger and partner conditions, $t(109) = 2.5$, $p = .01$. Dorsolateral prefrontal cortex effects indicate a main effect of handholding, $F(2, 210) = 6.8$, $p = .001$, $\eta^2 = .06$. Paired comparisons revealed no significant differences between the alone (M = .13, SE = .03) and stranger (M = .18, SE = .04) conditions, $t(109) = -1.2$, $p = .23$, but there was a significant difference between the alone and partner (M = .05, SE = .02) conditions, $t(109) = 2.5$, $p = .02$, and the stranger and partner conditions, $t(109) =$

3.5, $p < .001$. Anterior insula effects indicate a main effect of handholding, $F(2, 210) = 3.5$, $p = .03$, $\eta^2 = .03$. Paired comparisons revealed no significant differences between the alone (M = .50, SE = .05) and stranger (M = .53, SE = .05) conditions, $t(109) = -0.6$, $p = .55$, but there was a significant difference between the alone and partner (M = .41, SE = .04) conditions, $t(109) = 2.2$, $p = .03$, and the stranger and partner conditions, $t(109) = 2.4$, $p = .02$.

Interaction Effect of Handholding by MSPSS

An interaction between handholding and MSPSS was detected in the superior colliculus, $F(2, 210) = 3.7$, $p = .03$, $\eta^2 = .03$. MSPSS was significantly positively correlated with threat response in the superior colliculus in the stranger condition ($r = .27$, $p = .005$), and not significantly correlated with threat response in the alone condition ($r = .09$, $p = .37$), or the partner condition ($r = -.08$, $p = .40$).

Supplementary Table 3
ROIs (converted from Talairach to MNI coordinates) that showed condition effects in Coan et al., 2006, examined here using 10mm3 masks. The table provides the ROI centroid coordinate, and whether a main effect of handholding or interaction between handholding and MSPSS were detected (indicated by a check in the relevant column), and whether planned comparisons indicate an effect attributable to the partner or the stranger. "Partner" checks indicate less activity during partner than stranger, alone, or both. Using precisely the same threat-related ROIs from Coan et al., 2006, we see that only the SMC, dlPFC, right Anterior Insula, and superior colliculus replicate. Moreover, in Coan et al., 2006, the right anterior insula effect was moderated by relationship quality, whereas here there is a main effect of handholding condition. Similarly, whereas in Coan et al., 2006, there was a main effect of handholding condition attributable to the partner in the superior colliculus, here, superior colliculus regulation by handholding is moderated by MSPSS.

	MNI Coordinates						
	X	Y	Z	HH	Partner	Stranger	HHx MSPSS
SMC	4	4	50	✔	✔		
SFG	-11	-13	66				
vACC	-12	43	-2				
dlPFC	33	33	31	✔	✔		
Anterior Insula	39	19	-1	✔	✔		
Caudate-Nacc	-8	7	-1				
PCC	-10	-30	41				
	14	-36	41				
Postcentral	28	-55	71				
SMG	-56	-30	19				
Hypothalamus	2	-12	-11				
SC	3	-27	-8				✔