Supplemental Material

Results

Examining Time by Condition Interactions

Because one of our participants had unusable data during the pre-manipulation resting state scan, we chose *a priori* to maximize our sample size and therefore to examine the effects of stress on resting state functional connectivity during the post-manipulation period alone. Nonetheless, we present analyses including the full Time by Condition interaction here for interested readers (n = 43).

As hypothesized, we found a significant Time × Condition interaction in functional connectivity with the hippocampus. Similar to the results presented in the main text, we found that, relative to participants in the control condition, participants in the stress condition decreased over time in functional connectivity between the hippocampus and a cluster of 59 voxels in the right temporal lobe (peak coordinates x: 50, y: -18, z: -20), $p_{cluster}$ = .018 (corrected), p_{height} < .001. Decomposing this interaction, we found that the stress and control groups did not differ in connectivity between the hippocampus and this region at baseline (M_{stress} = .086, $M_{control}$ = -.081), p = .136 (corrected), whereas the stress group showed significantly less connectivity between the hippocampus and this region than the control group post-manipulation (M_{stress} = -.143, $M_{control}$ = .071), p = .043 (corrected). Moreover, and again similar to the results presented in the main text, greater connectivity between the hippocampus and this cluster was associated with changes in cortisol, r = -.446, p = .003, and recollection of neutral materials, r = .326, p = .033, but not recollection of negative materials, r = .192, p = .217, or familiarity with neutral or negative materials, ps > .409.

Unlike the results presented in the main text, however, using the parahippocampal cortex as a seed (at a FDR cluster-corrected p < .05) revealed no significant Time × Condition interaction. Similar to results presented in the main text, no results emerged significant when using the amygdala or perirhinal cortex as seeds with this analytic approach.

Collapsing Valence

Although it was our *a priori* analytic plan to separate the memory results by valence—in line with our prior work (e.g., McCullough et al., 2015)—we also present analyses considering valence as a factor here. In an ANOVA with recollection as the outcome and including Condition and Valence as factors, we found a significant main effect of Condition, $F(1, 42) = 4.30$, $p = .044$, and a significant main effect of Valence, $F(1, 42) = 13.23$, $p < .001$, but no Condition × Valence interaction, $F(1, 42) = 0.42$, $p = .522$. Decomposing these effects, we found that participants in the stress condition had worse recollection overall ($p = .044$), and that participants had more recollection for negative images than neutral images ($p < .001$), but that the stress-related impairment of neutral image recollection was not significantly greater than the stress-related impairment of negative images ($p = .522$).

We then examined associations between recollection of all materials (i.e., for both negative and neutral images) and functional connectivity differences between groups. In these analyses, recollection collapsed across valence was not associated with the condition-different parahippocampal-middle temporal gyrus connectivity, $r = -.195$, $p = .204$, but had a marginally significant association with the condition-different hippocampal-superior temporal gyrus connectivity, $r = .278$, $p = .068$. Recollection collapsed across valence was also only marginally significantly associated with the new condition-different hippocampal functional connectivity cluster described in the section above, $r = .279$, $p = .070$.

Supplemental Table 1

Clusters showing significant functional connectivity with the hippocampus post-manipulation.

	Areas in Cluster	Hemisphere	Peak Coordinates	Size	$p_{corrected}$
All Participants					
Positive connectivity					
	Parahippocampal cortex, perirhinal cortex, amygdala, temporal pole, brain stem, posterior cingulate gyrus, anterior cingulate gyrus, precuneous, subcallosal cortex, frontal orbital cortex, thalamus, insular cortex, posterior temporal fusiform cortex, cerebellum, lingual gyrus, frontal medial cortex, temporal occipital fusiform cortex, inferior temporal gyrus, paracingulate gyrus, middle temporal gyrus, planum polare, anterior temporal fusiform cortex, superior temporal gyrus, putamen, nucleus accumbens	Bilateral	-26, -22, -18	40542	<.001
	Cerebellum	L	-12, -56, -38	139	.001
	Lateral occipital cortex	L	-36, -86, 30	127	.002
	Frontal pole, inferior frontal gyrus	R	48, 34, 10	98	.006
	Insular cortex	R	30, -10, 16	86	.010
Inverse connectivity					
	Frontal pole, superior frontal gyrus, paracingulate gyrus	Bilateral	-2, 44, 42	2029	<.001
	Frontal pole, middle frontal gyrus	R	34, 50, 12	1908	<.001
	Posterior supramarginal gyrus, angular gyrus	L	-60, -52, 28	1849	<.001
	Middle frontal gyrus, precentral gyrus	L	-38, 4, 46	1272	<.001
	Superior parietal lobule, precuneous	L	-14, -56, 42	890	<.001
	Superior parietal lobule	R	22, -56, 46	711	<.001
	Cerebellum, lateral occipital cortex	L	-26, -74, -24	649	<.001
	Posterior supramarginal gyrus, angular gyrus	R	60, -46, 42	632	<.001
	Inferior frontal gyrus	L	-54, 20, 4	300	<.001
	Cerebellum	R	34, -86, -36	226	<.001
	Lateral occipital cortex	L	-26, -76, 12	203	<.001
	Occipital pole	L	-20, -102, 16	173	<.001
	Inferior frontal gyrus	R	54, 20, 4	160	<.001
	Lateral occipital cortex	L	28, -74, 16	145	.001
	Occipital pole, occipital cortex	L	-42, -88, -6	83	.011

Stress > Control					
Stress < Control					
	Central opercular cortex, planum temporale, superior temporal gyrus	R	64, -14, 6	269	<.001

Note: $p_{corrected}$ represents the FDR-corrected two-tailed *p* value. Clusters may include additional defined regions not listed in this table; for brevity, areas in clusters with more than one defined region represent areas with greater than 80 voxels in the defined region or more than 10% of the defined region's total volume included in the cluster. Areas listed in a cluster are listed first by medial temporal lobe structures and then are organized by the number of voxels in the cluster included in the defined region. $p_{corrected}$ presents the FDR-corrected cluster *p* values. Areas were defined according to the FSL Harvard-Oxford Atlas.

Supplemental Table 2
Clusters showing significant functional connectivity with the parahippocampal cortex post-manipulation.

	Areas in Cluster	Hemisphere	Peak Coordinates	Size	$p_{corrected}$
All Participants					
Positive connectivity					
	Hippocampus, perirhinal cortex, amygdala, brain stem, precuneous, frontal pole, temporal pole, subcallosal cortex, posterior supramarginal gyrus, frontal orbital cortex, temporal occipital fusiform cortex, cerebellum, lingual gyrus, thalamus, posterior temporal fusiform cortex, frontal medial cortex, posterior cingulate gyrus, angular gyrus, anterior cingulate gyrus, occipital pole, superior parietal lobule, paracingulate gyrus, inferior temporal gyrus, middle temporal gyrus, insular cortex, anterior supramarginal gyrus, lateral occipital cortex, superior temporal gyrus, middle frontal gyrus, planum polare, postcentral gyrus, anterior temporal fusiform cortex	Bilateral	-24, -40, -14	47444	<.001
	Lateral occipital cortex	R	48, -68, 22	1601	<.001
	Lateral occipital cortex	L	-38, -82, 28	1581	<.001
	Posterior cingulate gyrus, precuneous	Bilateral	-8, -32, 36	390	<.001
	Superior frontal gyrus, middle frontal gyrus, frontal pole	R	24, 28, 40	353	<.001
	Superior frontal gyrus	L	-20, 28, 40	170	<.001
Inverse connectivity					
	Frontal pole, middle frontal gyrus	L	-24, 16, 24	2333	<.001
	Cerebellum	L	-30, -76, -30	847	<.001
	Cerebellum	R	34, -76, -30	814	<.001
	Inferior frontal gyrus, frontal operculum cortex	R	54, 20, 4	371	<.001
	Superior frontal gyrus	Bilateral	0, 44, 42	313	<.001
	Superior frontal gyrus	Bilateral	12, 14, 54	288	<.001
	Inferior frontal gyrus	L	60, 16, 6	242	<.001
	Middle temporal gyrus	R	70, -32, -2	102	.007
Stress > Control					
	Middle temporal gyrus	L	-68, -44, -6	123	.027
Stress < Control					

Note: $p_{corrected}$ represents the FDR-corrected two-tailed *p* value. Clusters may include additional defined regions not listed in this table; for brevity, areas in clusters with more than one defined region represent areas with greater than 80 voxels in the defined region or more than 10% of the defined region's total volume included in the cluster. Areas listed in a cluster are listed first by medial temporal lobe structures and then are organized by the number of voxels in the cluster included in the defined region. $p_{corrected}$ presents the FDR-corrected cluster *p* values. Areas were defined according to the FSL Harvard-Oxford Atlas.

Supplemental Table 3
Clusters showing significant functional connectivity with the perirhinal cortex post-manipulation.

	Areas in Cluster	Hemisphere	Peak Coordinates	Size	$p_{corrected}$
All Participants					
Positive connectivity					
	Hippocampus, parahippocampal cortex, amygdala, temporal pole, frontal orbital cortex, posterior temporal fusiform cortex, brain stem, inferior temporal gyrus, subcallosal cortex, putamen, temporal occipital fusiform cortex, insular cortex, anterior inferior temporal gyrus, posterior inferior temporal gyrus, thalamus, frontal pole, anterior temporal fusiform cortex, anterior cingulate gyrus, middle temporal gyrus, cerebellum, posterior cingulate gyrus, planum polare, pallidum, precuneous, lingual gyrus, anterior superior temporal gyrus, nucleus accumbens, caudate	Bilateral	-32, -10, -32	33756	<.001
	Inferior frontal gyrus, frontal pole	L	-38, 32, 10	456	<.001
	Frontal pole, inferior frontal gyrus	R	52, 38, 10	198	<.001
Inverse connectivity					
	Angular gyrus, posterior supramarginal gyrus	R	42, -44, 30	1337	<.001
	Angular gyrus, lateral occipital cortex, posterior supramarginal gyrus	L	-32, -50, 24	1307	<.001
	Frontal pole	R	30, 52, 16	1246	<.001
	Occipital pole, occipital fusiform gyrus, lateral occipital cortex	R	34, -88, -12	586	<.001
	Frontal pole	L	-26, -94, -14	574	<.001
	Frontal pole	L	-20, 50, 18	471	<.001
	Middle frontal gyrus	R	40, 26, 34	234	<.001
	Caudate	L	-18, 4, 24	169	<.001
	Lingual gyrus, cerebellum	Bilateral	-2, -82, -14	152	.001
	Frontal pole	L	-0, 58, 10	114	.004
Stress > Control					
Stress < Control					

Note: $p_{corrected}$ represents the FDR-corrected two-tailed *p* value. Clusters may include additional defined regions not listed in this table; for brevity, areas in clusters with more than one defined region represent areas with greater than 80 voxels in the defined region or more than 10% of the defined region's total volume included in the cluster. Areas listed in a cluster are listed first by medial temporal

lobe structures and then are organized by the number of voxels in the cluster included in the defined region. $p_{corrected}$ presents the FDR-corrected cluster *p* values. Areas were defined according to the FSL Harvard-Oxford Atlas.

Supplemental Table 4
Clusters showing significant functional connectivity with the amygdala post-manipulation.

	Areas in Cluster	Hemisphere	Peak Coordinates	Size	$p_{corrected}$
All Participants					
Positive connectivity					
	Hippocampus, parahippocampal cortex, perirhinal cortex, temporal pole, brain stem, frontal orbital cortex, putamen, insular cortex, thalamus, posterior temporal fusiform cortex, subcallosal cortex, temporal occipital fusiform cortex, cerebellum, inferior temporal gyrus, central opercular cortex, caudate, anterior temporal fusiform cortex, planum polare, middle temporal gyrus, anterior superior temporal gyrus, lingual gyrus, caudate, frontal pole, pallidum, precentral gyrus, frontal operculum cortex, inferior frontal gyrus	Bilateral	-24, -4, -20	38679	<.001
	Frontal medial cortex	Bilateral	4, 46, -14	166	.001
Inverse connectivity					
	Precuneous, angular gyrus, lateral occipital cortex, posterior supramarginal gyrus, superior parietal lobule	Bilateral	30, -70, 10	5443	<.001
	Lateral occipital cortex, angular gyrus, posterior supramarginal gyrus	L	-48, -56, 30	2780	<.001
	Middle frontal gyrus	L	-38, 26, 34	746	<.001
	Frontal pole	L	-30, 56, -6	605	<.001
	Middle frontal gyrus	R	42, 28, 34	576	<.001
	Paracingulate gyrus, superior frontal gyrus, paracingulate gyrus	Bilateral	0, 22, 42	505	<.001
	Frontal pole	R	30, 52, 16	88	.021
	Superior frontal gyrus	R	16, 20, 48	84	.023
Stress > Control					
Stress < Control					

Note: $p_{corrected}$ represents the FDR-corrected two-tailed *p* value. Clusters may include additional defined regions not listed in this table; for brevity, areas in clusters with more than one defined region represent areas with greater than 80 voxels in the defined region or more than 10% of the defined region's total volume included in the cluster. Areas listed in a cluster are listed first by medial temporal lobe structures and then are organized by the number of voxels in the cluster included in the defined region. $p_{corrected}$ presents the FDR-corrected cluster *p* values. Areas were defined according to the FSL Harvard-Oxford Atlas.