Supplementary material for

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The role of the basolateral amygdala in the perception of faces in natural contexts

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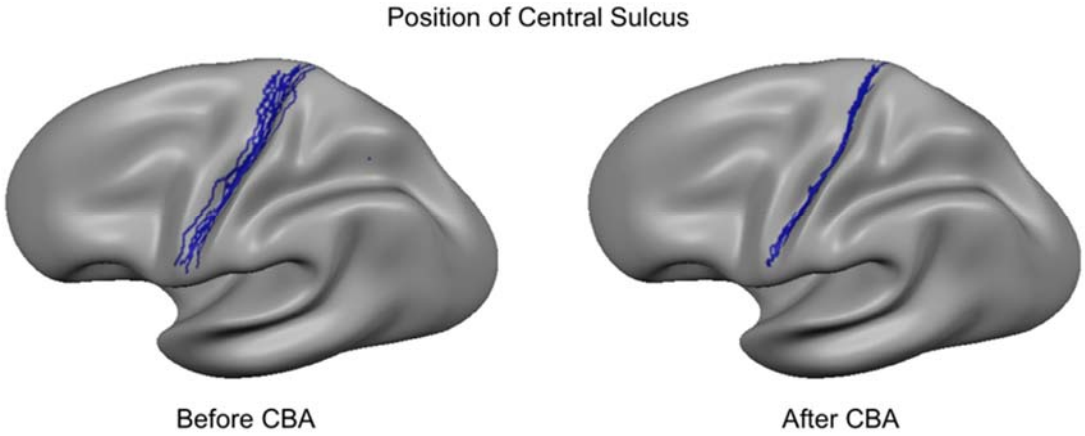

Figure S1. Pre- and Post-Cortex-Based Alignment comparison of between-subjects alignment. Position of the left central sulcus for all participants before and after Cortex-Based Alignment shown on a semi-inflated cortex representation.

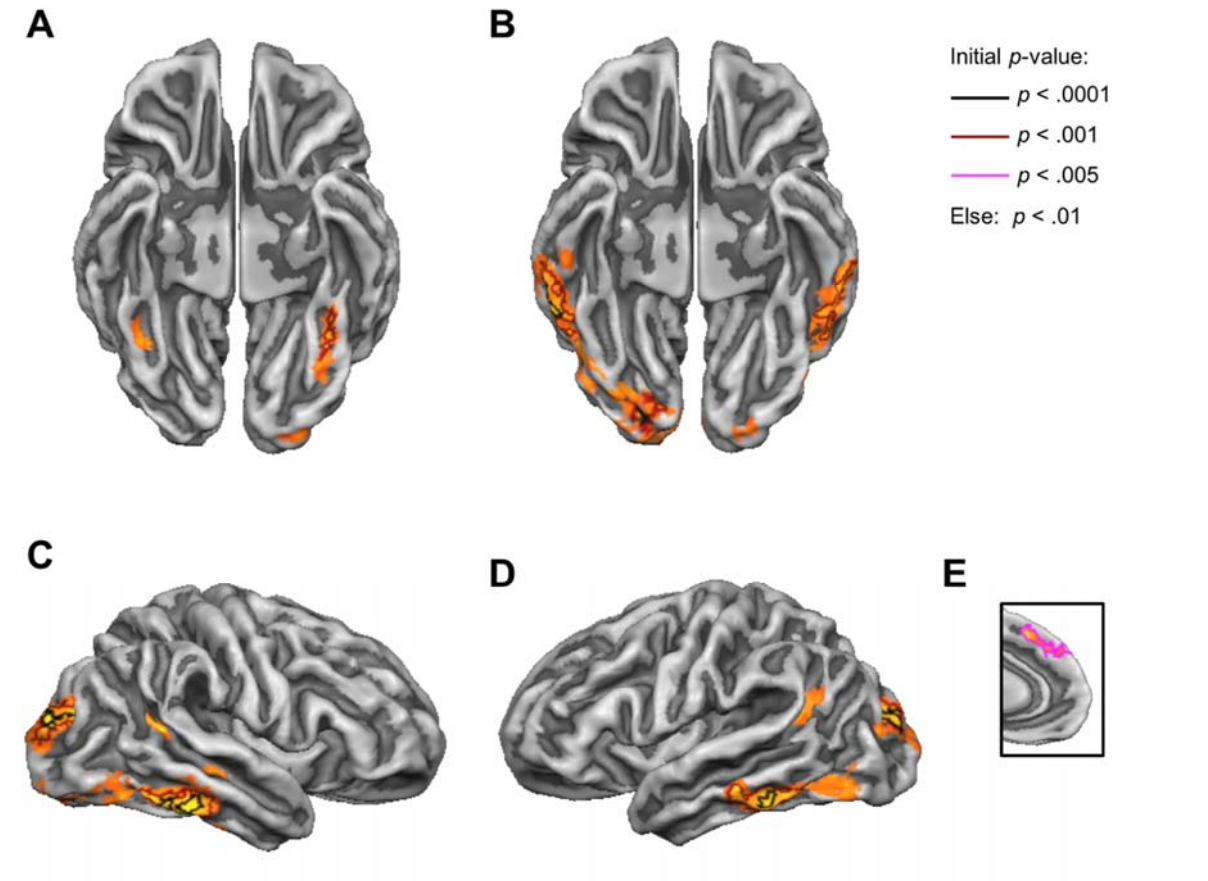

Figure S2. Results from the categorical contrasts for both groups combined. Faces compared to control shapes elicited activation in face-selective areas of the fusiform gyrus (A). Among others the transverse occipital sulcus and the fusiform gyrus were more activated to scenes compared to scrambled scenes (B-D). These findings are in line with previous studies [1,2]. UWDs compared to controls showed more activation to scenes versus scrambled scenes in the left superior frontal gyrus (E). **Table S1** report the outcome in detail. All activations are cluster-size corrected and lines denote if clusters survive a more stringent initial single voxel threshold.

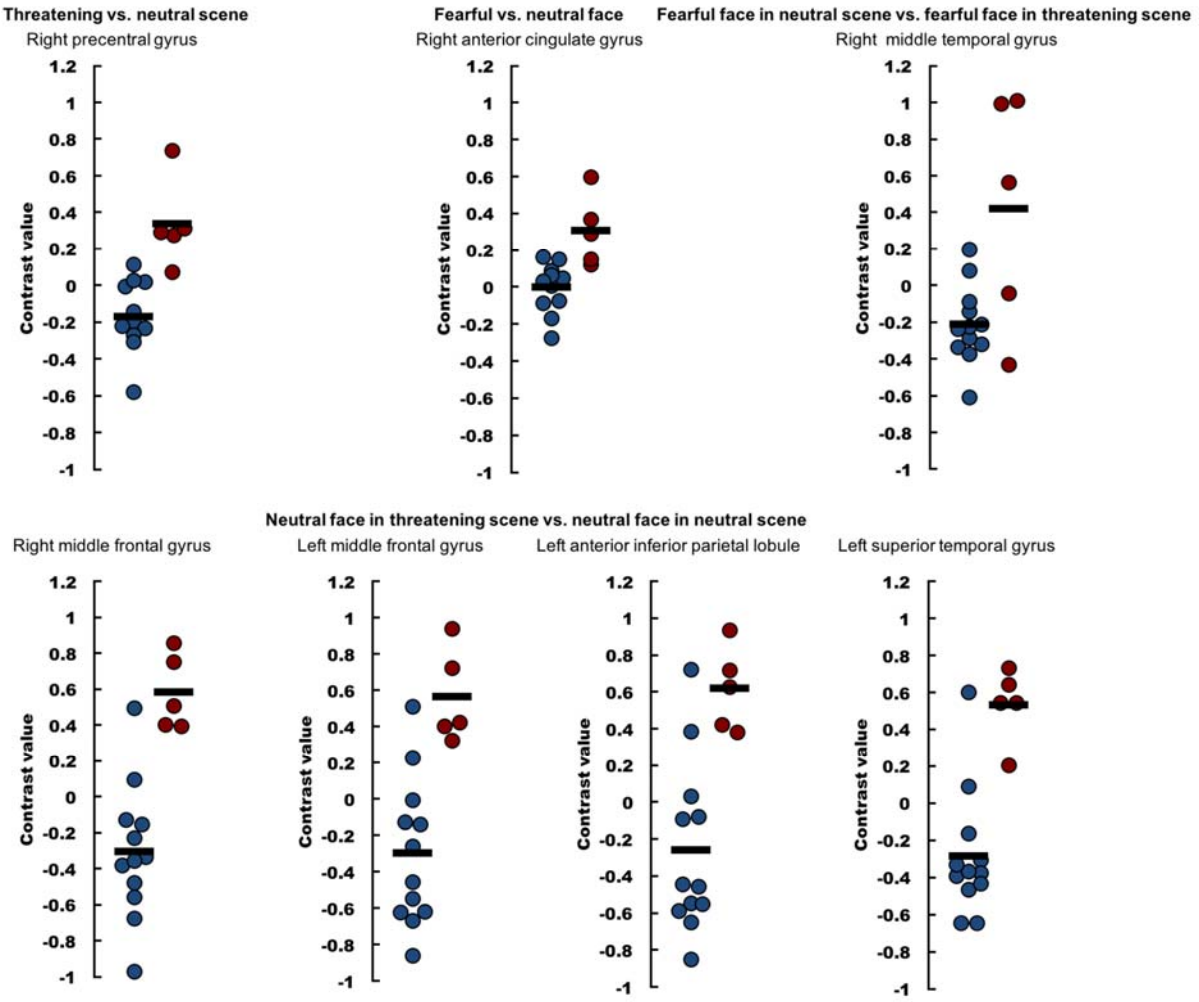

Figure S3. Results for the main contrasts. Beta values for each individual were extracted from the clusters and the contrast value calculated. The UWD group is represented by the red dots, and the control group by the blue dots. The black line indicates the group average.

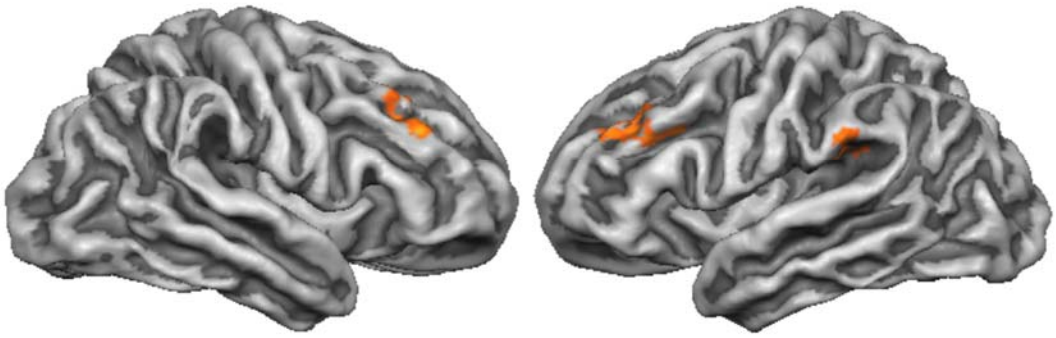

Figure S4. Between group differences for neutral faces presented in a threatening compared to a scrambled scene. UWDs compared to controls showed more activation in the left aIPL and bilateral middle frontal gyrus.

Table S1 Outcome of the categorical contrasts for UWDs and controls combined

		Talairach coordinates						
	Hemisphere	x	y	z	Brodmann	*t*	*p*	*Number of vertices*
Faces > control shapes								
Fusiform gyrus	RH	36	-53	-14	37	5.585	.000041	44
Fusiform gyrus	LH	-36	-42	-17	20	6.986	.000003	115
Inferior occipital gyrus	LH	-26	-88	-11	18	4.383	.000463	36
Scenes > scrambled scenes								
Middle temporal gyrus	RH	52	-42	-14	20	6.694	.000005	580
Precuneus	RH	30	-67	25	31	9.666	<.000001	488
Lingual gyrus	RH	20	-82	-7	18	7.011	.000003	150
Superior temporal gyrus	RH	46	-24	-2	22	5.022	.000125	57
Fusiform gyrus	RH	47	-23	-21	20	3.953	.001139	39
Lingual gyrus	RH	6	-81	-3	18	5.610	.000039	19
Superior temporal gyrus	RH	47	-42	13	13	7.245	.000002	76
Inferior temporal gyrus	LH	-51	-49	-10	20	5.986	.000019	599
Middle occipital gyrus	LH	-23	-88	15	18	7.345	.000002	295
Superior temporal gyrs	LH	-41	-49	17	22	5.030	.000123	134
Fusiform gyrus	LH	-21	-87	-12	18	3.959	.001125	25

$p < .01$, cluster size corrected

Table S2 Outcome for threatening versus neutral scenes for UWDs and controls separately and combined

		Talairach coordinates						
	Hemisphere	x	y	z	Brodmann	*t*	*p*	*Number of vertices*
Threatening > neutral scene								
Controls								
Cuneus	RH	7	-88	12	18	5.866	.000108	13
UWDs								
Superior temporal gyrus	RH	51	-30	7	22	8.771	.000932	42
UWDs and controls combined								
No clusters								
Neutral > threatening scenes								
Controls								
Superior frontal gyrus	RH	18	47	31	9	5.805	.000118	52
Precentral gyrus	LH	-58	-8	29	4	5.742	.000130	49
Inferior parietal lobule	LH	-35	-40	54	40	5.356	.000232	50
UWDs								
No clusters								
UWDs and controls combined								
No clusters								

$p < .01$ (uncorrected) with an extended cluster size of 25.

Table S3 Outcome for fearful versus neutral faces for UWDs and controls separately and combined

		Talairach coordinates						
	Hemisphere	x	y	z	Brodmann	*t*	*p*	*Number of vertices*
Fearful > neutral face								
Controls								
Superior parietal lobule	RH	17	-58	59	7	4.661	.000693	79
UWDs								
No clusters								
UWDs and controls combined								
Precuneus / superior parietal lobule	RH	13	-55	54	7	4.816	.000190	189
Middle occipital gyrus	RH	30	-80	-10	18	5.237	.000081	34
Cuneus	RH	27	-91	-1	18	3.910	.001247	24
Preceneus	LH	-10	-41	45	7	5.627	.000038	61
Parahippocampal gyrus	LH	-8	-33	4	30	4.556	.000324	86
Superior frontal gyrus	LH	-18	25	50	6	4.710	.000236	40
Neutral > fearful face								
Controls								
Superior temporal gyrus	RH	39	9	-26	38	8.774	.000003	174
Superior temporal gyrus	RH	54	-7	5	22	5.784	.000122	54
Inferior frontal gyrus	RH	26	27	-5	47	5.819	.000116	30
Inferior temporal gyrus	LH	-40	-8	-30	20	8.907	.000002	72
Insula	LH	-33	-8	0	13	4.796	.000557	59
UWDs								
No clusters								
UWDs and controls combined								
Inferior frontal gyrus	RH	28	32	1	47	7.239	.000002	72
Uncus	RH	35	-6	-27	20	5.482	.000050	223
Insula	RH	35	-6	0	13	4.136	.000775	53
Superior temporal gyrus	RH	56	-2	0	22	5.474	.000051	62
Inferior frontal gyrus	RH	47	29	1	45	5.576	.000042	46
Insula	LH	-34	-11	2	13	5.203	.000087	73
Precuneus	LH	-15	-66	21	31	4.400	.000447	26
Middle temporal gyrus	LH	-37	-7	-28	21	7.246	.000002	129
Uncus	LH	-31	-8	-27	28	4.799	.000197	45
Middle frontal gyrus	LH	-29	44	-4	11	5.987	.000019	23

$p < .01$ (uncorrected) with an extended cluster size of 25.

Table S4 Outcome for fearful faces in a neutral scene versus fearful faces in a threatening scene for UWDs and controls separately and combined

		Talairach coordinates						
	Hemisphere	x	y	z	Brodmann	*t*	*p*	*Number of vertices*
Fearful face in a neutral scene > fearful face in a threatening scene								
Controls								
Middle frontal gyrus	RH	26	39	36	9	6.723	.000033	19
UWDs								
No clusters								
UWDs and controls combined								
No clusters								
Fearful face in a threatening scene > fearful face in a neutral scene								
Controls								
No clusters								
UWDs								
No clusters								
UWDs and controls combined								
Posterior cingulate	RH	21	-58	11	30	6.818	.000004	45
Cuneus	RH	8	-83	7	17	4.916	.000155	34

$p < .01$ (uncorrected) with an extended cluster size of 25.

Table S5 Outcome for neutral faces in a threatening scene versus neutral faces in a neutral scene for UWDs and controls separately and combined

		Talairach coordinates						
	Hemisphere	x	y	z	Brodmann	*t*	*p*	*Number of vertices*
Neutral face in a threatening scene > neutral face in a neutral scene								
Controls								
No clusters								
UWDs								
Superior temporal gyrus	RH	47	-20	1	22	14.385	.000136	64
UWDs and controls combined								
No clusters								
Fearful face in a threatening scene > fearful face in a neutral scene								
Controls								
Postcentral gyrus	LH	-48	-20	17	43	7.044	.000021	56
UWDs								
No clusters								
UWDs and controls combined								
No clusters								

$p < .01$ (uncorrected) with an extended cluster size of 25.

Table S6 Outcome of exploratory ROI analyses

	Hemisphere	Outcome
Occipital face area	RH	Main effect for faces: $F(2,30) = 6.10$, $p = .006$, $\eta_p^2 = .29$ – fearful face > control shape Main effect for scenes: $F(2,30) = 4.67$, $p = .017$, $\eta_p^2 = .24$ – neutral scene > scrambled scene Faces * scenes interaction: $F(4,60) = 2.63$, $p = .043$, $\eta_p^2 = .15$ – control shape in a threatening scene > control shape in a scrambled scene / control shape in a neutral scene > control shape in a scrambled scene
Fusiform face area	RH	Main effect for faces: $F(2,30) = 11.53$, $p = .0002$, $\eta_p^2 = .44$ – fearful face > control shape / neutral face > control shape
Parahippocampal place area	RH	Main effect for scenes: $F(2,30) = 4.59$, $p = .018$, $\eta_p^2 = .23$ – threatening scene > scrambled scene / neutral scene > scrambled scene
Parahippocampal place area	LH	Main effect for faces: $F(2,30) = 3.60$, $p = .04$, $\eta_p^2 = .19$ – control shape > neutral face
Extrastriate body area	RH	-
Superior temporal sulcus	RH	Fearful faces in a neutral vs. fearful faces in a threatening scene – UWDs > controls, $t(15) = 2.25$, $p = .04$ or non-parametric Mann-Whitney U test: $U = 9$, $p = .027$.
Superior temporal sulcus	LH	-
Cuneus	RH	Main effect for group: $F(1,15) = 7.27$, $p = .017$, $\eta_p^2 = .33$ – UWDs > controls

Only significant post-hoc effects are listed.

References

1.Van den Stock, J., Vandenbulcke, M., Sinke, C. B. A. & de Gelder, B. 2014 Affective scenes influence fear perception of individual body expressions. *Human brain mapping*. **35**, 492–502. (doi:10.1002/hbm.22195)

2.Van den Stock, J., Vandenbulcke, M., Sinke, C. B. A., Goebel, R. & de Gelder, B. 2014 How affective information from faces and scenes interacts in the brain. *Social Cognitive and Affective Neuroscience*. **9**, 1481–1488. (doi:10.1093/scan/nst138)