Supplementary Materials

Motion Scrubbing

The motion scrubbing procedures remove any frames of data with sum head motion (displacement from previous frame) greater than 0.5mm. Several analyses were performed to assess the effects of this procedure and to assure that it did not biased the subsequent data analysis. There was a significant reduction in root mean square head motion due to motion scrubbing (paired t-test: $t(51) = 4.81$, $p = 1.40 \times 10^{-5}$). After motion scrubbing, participants retained between 60.61% and 95.96% of their original frames (mean = 87.67%, SD = 8.60%), as shown in Supplementary Figure 1. No significant difference was found between the number of frames removed from trials of each of the 5 face types (repeated measures ANOVA with Greenhouse-Geisser sphericity correction; effect of emotion: $F(2.74)=1.78$, $p = 0.16$). Additionally, no significant effects of gender ($F(1)=0.60$, $p = 0.44$), age ($F(1)=0.72$, $p = 0.40$), or puberty ($F(2)=0.07$, $p = 0.93$) were found on motion scrubbing. By removing frames with disruptions in the BOLD signal induced by head motion and thus removing spurious noise in activity timecourses, we expect to see a more significant main effect of time in regions that are active to the task. To test this, a separate GLM was constructed using each participant's unscrubbed and then scrubbed data. Using a repeated-measures ANOVA, the main effect of time was examined first for the unscrubbed data. The resulting z-score maps were thresholded at a z-score of >3 and cluster size of >13 contiguous voxels. In-house scripts were then used to separate the thresholded z-score map for the unscrubbed data into smaller ROI clusters by finding peaks in z-scores at least 10mm apart from each other. Z-scores for the main effect of time were extracted from the resulting 212 ROIs for the unscrubbed and scrubbed data. Supplementary Figure 2 shows the z-scores for the unscrubbed and scrubbed data from each of these ROIs (each point represents one ROI, any point above the x-y line indicate an increase in z-score due to scrubbing). There is a significant increase in z-scores across these ROIs following motion scrubbing (paired t-test: $t(51) = 8.86$, $p = 3.24 \times 10^{-16}$). Supplementary Figure 3

shows a whole-brain map of the percent ratio of scrubbed/unscrubbed z-scores for main effect of time in these ROIs (100% x (scrubbed z-score / unscrubbed z-score)). Given these analyses suggesting that motion scrubbing improved the quality of the data and increased sensitivity, all other results represent scrubbed data only.

Supplementary Table 1: Amygdala ANOVA results from functionally and anatomically defined ROIs, only examining emotion and time

| Model Type		Functional ROIs				Anatomical ROIs			
Finite Impulse Response (All 7 Timepoints)	**Left Hemisphere**	**df^**	**F**	**p**	**Partial η2**	**df**	**F**	**p**	**Partial η2**
	Time *	3.14	8.24	0.00	0.14	3.45	6.20	0.00	0.10
	Emotion x Time	9.34	1.36	0.20	0.03	11.59	1.10	0.36	0.02
	Right Hemisphere	**df**	**F**	**p**	**Partial η2**	**df**	**F**	**p**	**Partial η2**
	Time *	3.73	14.09	0.00	0.22	3.11	6.60	0.00	0.12
	Emotion x Time	10.38	1.09	0.37	0.02	10.59	0.83	0.61	0.02
Finite Impulse Response (Only Timepoint 3)	**Left Hemisphere**	**df^**	**F**	**p**	**Partial η2**	**df**	**F**	**p**	**Partial η2**
	Emotion	4.00	0.63	0.65	0.01	3.29	0.89	0.46	0.02
	Right Hemisphere	**df**	**F**	**p**	**Partial η2**	**df**	**F**	**p**	**Partial η2**
	Emotion	2.61	0.59	0.60	0.01	2.63	1.13	0.34	0.02
SPM Canonical HRF	**Left Hemisphere**	**df^**	**F**	**p**	**Partial η2**	**df**	**F**	**p**	**Partial η2**
	Emotion	3.43	0.65	0.61	0.01	4.00	0.17	0.96	0.00
	Right Hemisphere	**df**	**F**	**p**	**Partial η2**	**df**	**F**	**p**	**Partial η2**
	Emotion	2.85	0.53	0.65	0.01	2.90	0.22	0.88	0.00

This table represents the results of repeated-measures ANOVAs of left and right amygdala activity from functionally and anatomically defined ROIs. Within-subject factors include emotion (5 face types) and time (7 timepoints/trial) for full timecourse analysis of FIR data and only emotion for analyses with only the peak timepoint or HRF magnitudes. Hemisphere = left or right hemisphere of amygdala ROI.

^ Mauchly's Test was used to test the assumption of sphericity. df values represent numerator degrees of freedom adjusted for non-sphericity by Greenhouse-Geisser Correction.

* = p < 0.05
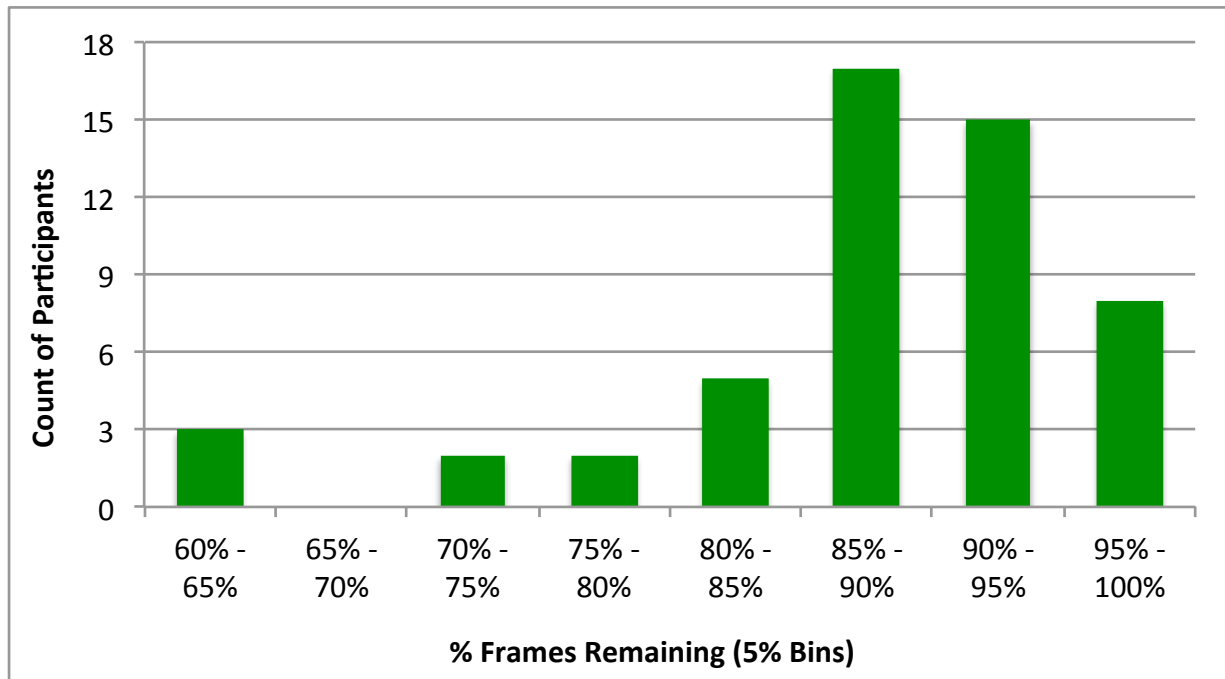
Supplementary Figure 1: Histogram of frames remaining following motion scrubbing across all participants
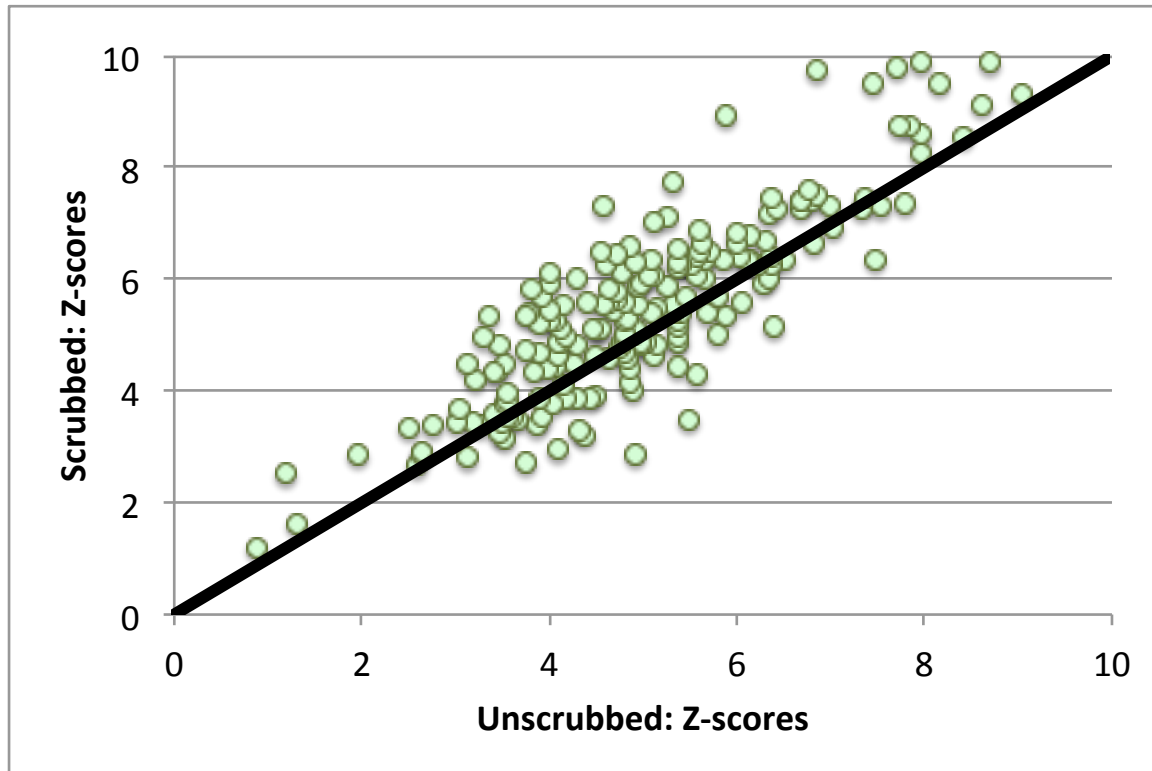
Supplementary Figure 2: Relationship between z-scores for main effect of time prior to motion scrubbing and after motion scrubbing. Each point represents an ROI isolated from the ANOVA main effect of time for the unscrubbed data. ROIs above the x-y line show an increase in z-score due to motion scrubbing.
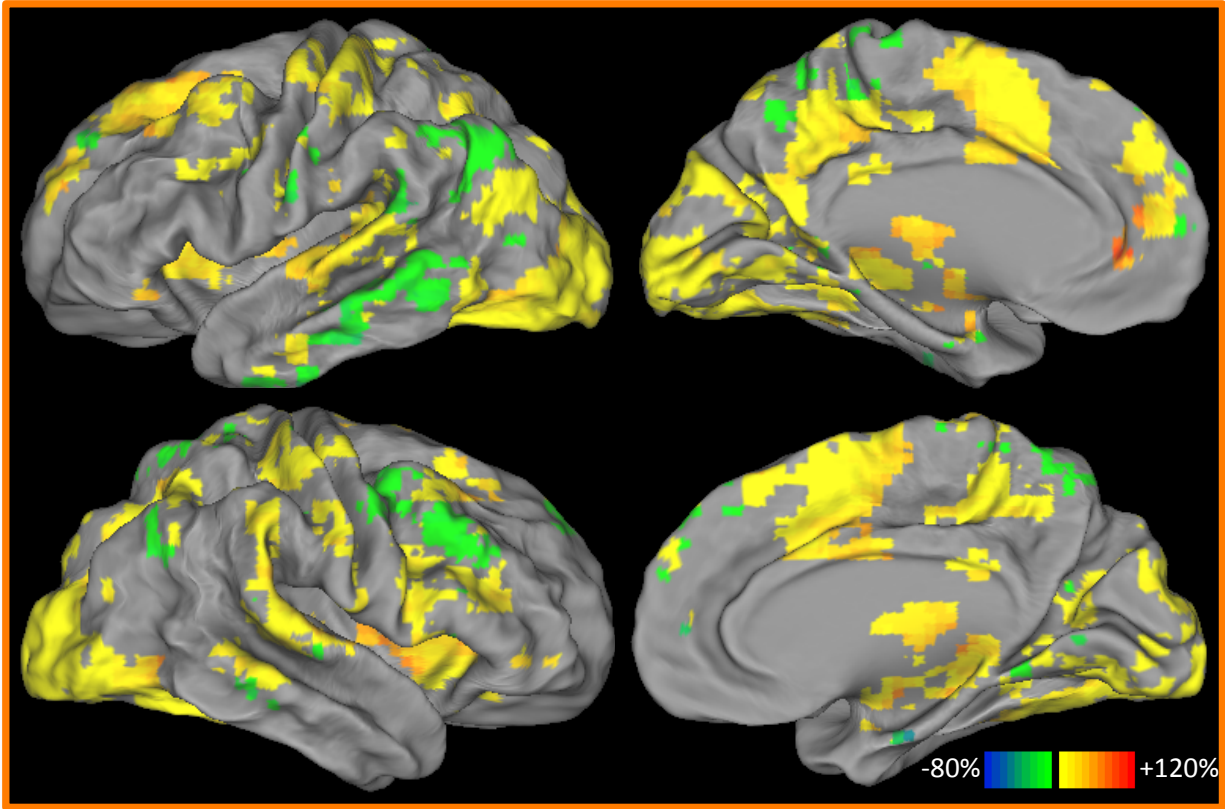
Supplementary Figure 3: Percent ratio of scrubbed/unscrubbed z-scores of main effect of time due to motion scrubbing
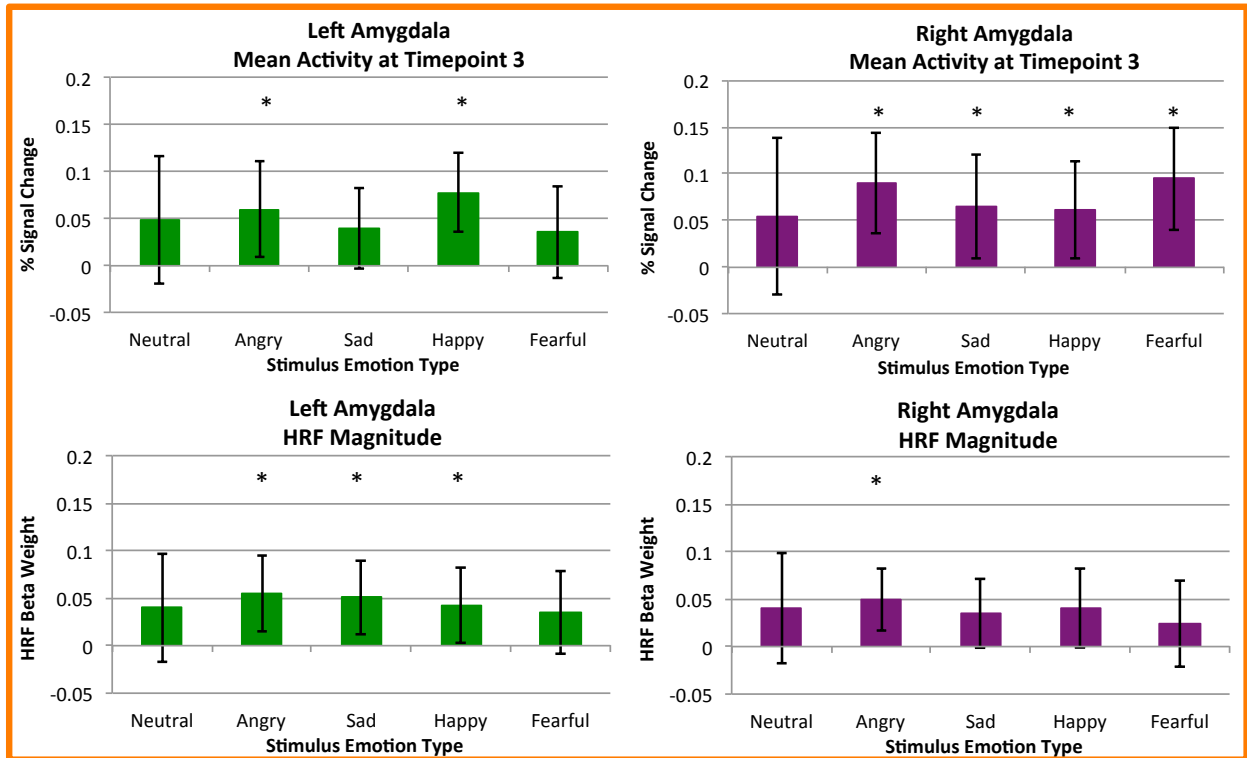
Supplementary Figure 4: Mean activity in the left and right anatomically defined amygdala for each stimulus emotion type with 95% confidence intervals. Top row: Mean activity at timepoint 3 (unassumed response shape) Bottom row: Magnitude estimate for SPM cannonical HRF. * significantly different than zero at $p < 0.05$
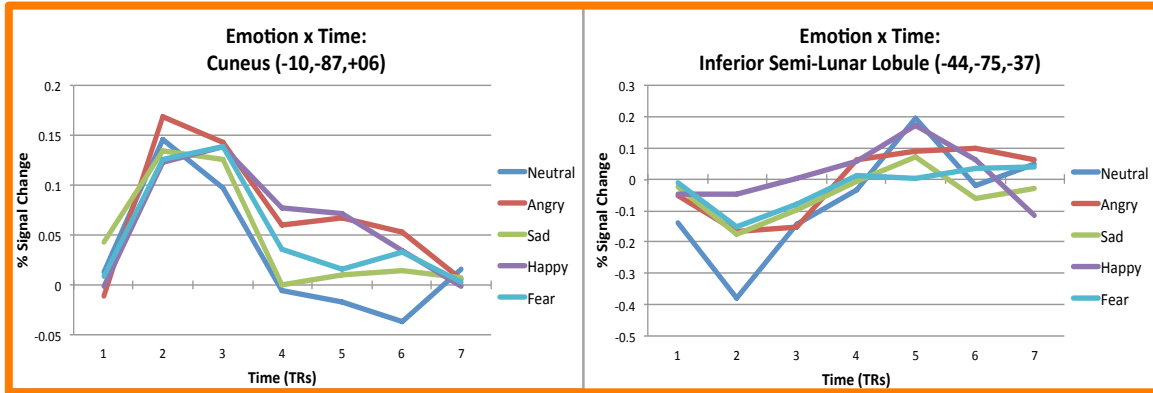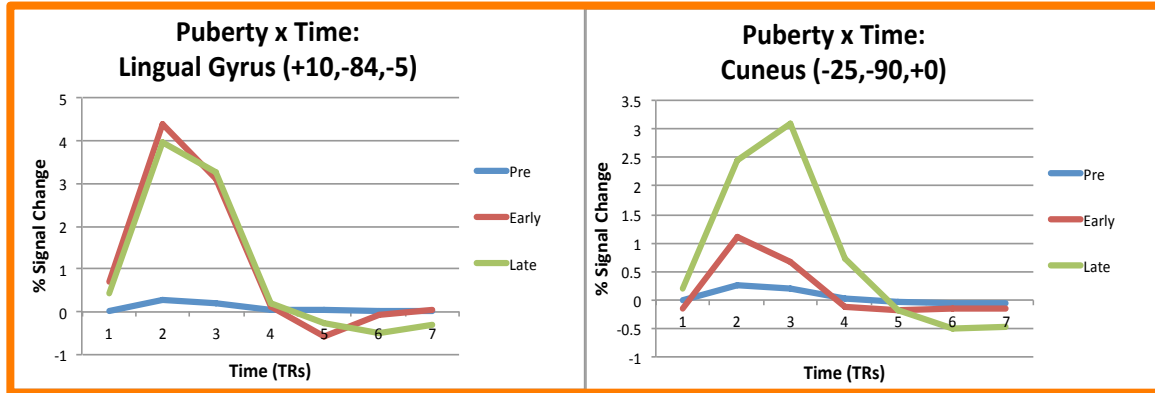
Supplementary Figure 5: Example timecourses for each emotion type from regions showing a significant interaction between emotion and time
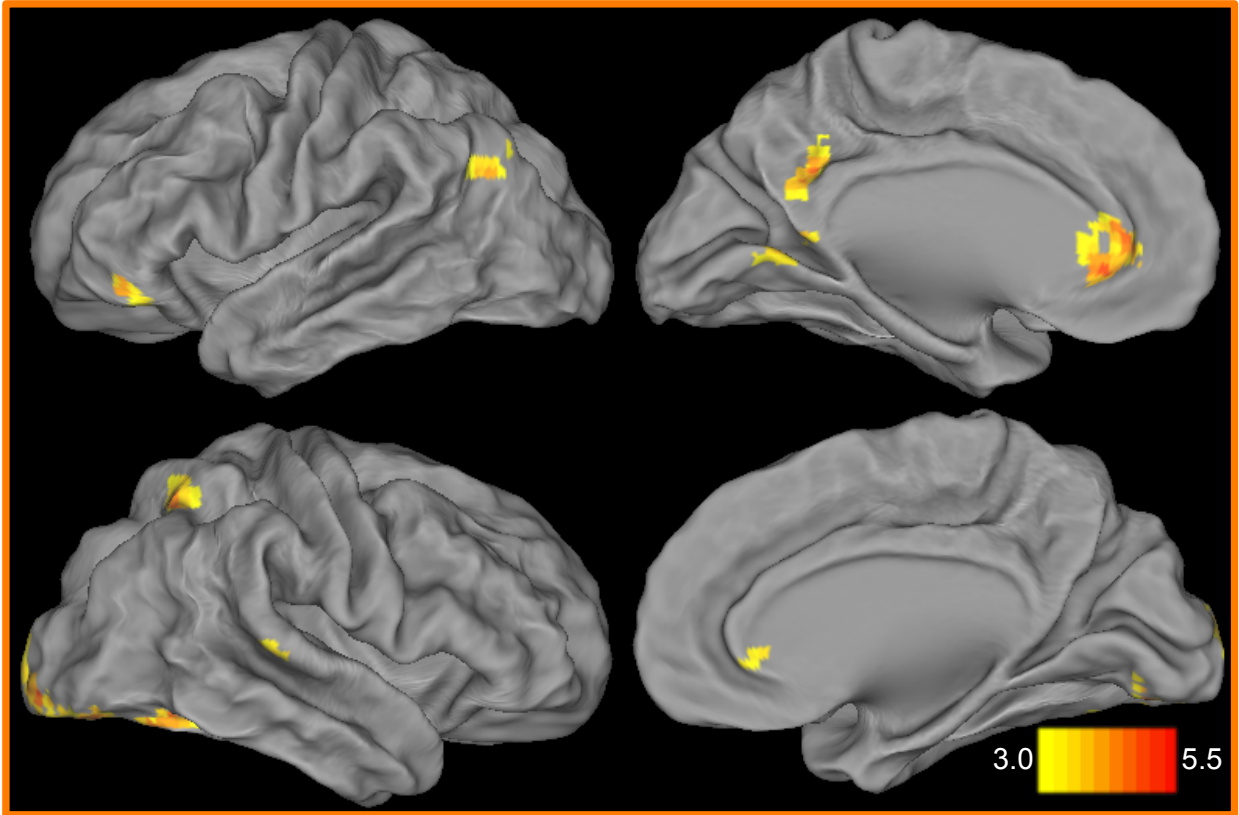
Supplementary Figure 6: Brain regions showing interaction between gender and time

Supplementary Figure 7: Example timecourses for each pubertal group from regions showing a significant interaction between puberty and time