# The amygdala and appraised concern-relevance: initial evidence that intrinsic motivation modulates amygdala response to otherwise neutral stimuli

**Supplementary Materials**

Supplementary materials illustrate effect of Condition, irrespective of stimulus on whole-brain blood oxygen-level dependent (BOLD) activity. They show Intrinsic Accomplishment Motivation correlating with BOLD response during the *intrinsic motivation* condition in contrast target > nontarget as well as the correlations between Intrinsic Accomplishment Motivation and left and right amygdala activity when viewing targets, relative to nontargets, in the three conditions.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Region/Subregion** | | **k** | **T** | **x** | **y** | **z** |
|  |  |  |  |  |  |  |
| *(A) Extrinsic Motivation > (Intrinsic Motivation + Baseline)* | | | | |  |  |
|  |  |  |  |  |  |  |
| Cerebellum | | 965 | 5.27 | 22 | -62 | -50 |
|  |  |  | 5.1 | 22 | -76 | -50 |
|  |  |  | 4.92 | 30 | -52 | -52 |
|  |  |  | 4.75 | -26 | -76 | -48 |
|  |  |  | 4.6 | -34 | -74 | -46 |
|  |  |  | 4.46 | -2 | -62 | -50 |
| Lateral Occipital Cortex | | 563 | 4.87 | -38 | -68 | -20 |
|  | Fusiform |  | 4.71 | -46 | -58 | -22 |
|  | Cerebellum |  | 4.59 | -36 | -68 | -24 |
|  |  |  | 4.2 | -24 | -66 | -18 |
|  |  |  | 4.15 | -42 | -74 | -24 |
|  |  |  | 4.06 | -10 | -84 | -22 |
| Cerebellum | | 53 | 4.39 | 26 | -42 | -24 |
| Lingual Gyrus | | 38 | 4.07 | 0 | -62 | -4 |
|  | Cerebellum |  | 3.85 | 4 | -60 | -6 |
|  | Cerebellum |  | 3.82 | 2 | -54 | -2 |
| Fusiform Cortex | | 34 | 3.96 | -34 | -48 | -24 |
| Cerebellum | | 30 | 4.94 | 2 | -74 | -16 |
| Lingual Gyrus | | 28 | 5.84 | 8 | -90 | -12 |
| Lingual Gyrus | | 18 | 4.25 | 22 | -48 | -12 |
| Cerebellum | | 4 | 3.39 | -24 | -54 | -22 |
| Fusiform | | 4 | 3.4 | 24 | -62 | -12 |
| Inferior Temporal Gyrus | | 3 | 4.51 | 46 | -44 | -20 |
| Parahippocampal Gyrus | | 2 | 4.25 | -26 | -26 | -28 |
| Fusiform | | 1 | 3.17 | 22 | -56 | -16 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| *(B) Baseline > (Intrinsic Motivation + Extrinsic Motivation)* | | | | |  |  |
|  | |  |  |  |  |  |
| Striatum (Putamen) | | 108 | 4.91 | 26 | 2 | 0 |
|  |  | | 4.77 | 30 | 6 | -6 |
|  |  | | 4.4 | 18 | 6 | -6 |
|  |  | | 4.01 | 28 | 10 | 2 |
| Posterior Insula | | 52 | 4.94 | -42 | -6 | -6 |
|  | Insula |  | 4.54 | -42 | 0 | -4 |
|  | Posterior Insula | | 4.5 | -38 | -12 | 2 |
|  | Heschl's Gyrus | | 4.43 | -46 | -16 | 10 |
|  | Heschl's Gyrus | | 4.4 | -46 | -14 | 0 |
|  | Posterior Insula | | 4.13 | -34 | -16 | 4 |
| Parietal Operculum | | 27 | 4.48 | 42 | -14 | 18 |
| Central Opercular Cortex | |  | 4.28 | 44 | -18 | 22 |
| Precentral Gyrus | | 26 | 5.64 | 50 | -6 | 46 |
| Striatum (Putamen) | | 21 | 4.77 | -30 | 2 | -2 |
| Angular Gyrus | | 15 | 4.72 | 60 | -60 | 14 |
| Posterior Insula | | 8 | 4.68 | 34 | -14 | 6 |
| Heschl's Gyrus | | 8 | 4.19 | 50 | -20 | 8 |
| Planum Polare | | 4 | 5.33 | -48 | 2 | -6 |
| Anterior Insula | | 3 | 4.73 | -36 | 14 | 2 |
| Precuneus | | 3 | 4.89 | -10 | -68 | 28 |

**Table S1. Main effect of condition.** Table shows effect of condition, irrespective of stimulus (targets, nontargets). (A) Extrinsic Motivation > (Intrinsic Motivation + Baseline) (p-TFCE<.05); (B) Baseline > (Intrinsic Motivation + Extrinsic Motivation) (p-TFCE<.05)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Region/Sub-Region** | | **Hem** | **k** | **T** | **x** | **y** | **z** |
| Frontal Pole/dLPFC | | L | 6 | 4.79 | -48 | 40 | 18 |
| Fusiform | | L | 12 | 4.33 | -42 | -50 | -24 |
|  | Cerebellum | L |  | 4.41 | -40 | -52 | -36 |
|  |  | L |  | 3.54 | -46 | -56 | -38 |
| Cerebellum | | L | 100 | 5.96 | -24 | -58 | -30 |
|  | Lateral Occipital Cortex | R | 11 | 5.08 | 60 | -58 | 6 |
| Lateral Occipital Cortex | | L | 4 | 4.43 | -56 | -62 | -8 |
| Lateral Occipital Cortex | | R |  | 5.17 | 56 | -64 | 6 |

**Table S2. Intrinsic Accomplishment Motivation correlating with BOLD response during *Intrinsic Motivation* condition in contrast target > nontarget (p-TFCE<.05)**



**Figure S3.** **The amygdala response to concern-relevant targets**. Figure shows correlation between Intrinsic Accomplishment Motivation and left and right amygdala activity when viewing targets, relative to nontargets, in the three conditions. \*\*\*p<.001, \*\*p<.01.