

Supplementary Results

Behavioral Performance

The AD/HD and control groups did not differ significantly from one another on any of the behavioral task measures. The overall hit rate (responses leading to gain or loss avoidance) was .60 (SD = .07) for the AD/HD group and .58 (SD = .05) for the control group ($F(1,20) = .45$; ns). Mean reaction times for hits did not differ across groups (NC: 202.6 (SD 23.8); ADHD: 171.8 (SD 40.7); $F(1,20) = 1.1$, ns), nor did variability of reaction times (NC: 36.8 (SD 17.6); ADHD: 35.9 (SD 16.0); $F(1,18) = .02$, ns) or proportion of premature responses (NC: .05 (SD .06); ADHD: .05 (SD .08) $F(1,20) = .001$, ns).

There was no effect of valence (positive or negative) on hit rate ($F(1,20) = .002$, ns), mean reaction time for hits ($F(1,20) = .51$, ns), variability of reaction times ($F(1,18) = .65$, ns), or proportion of premature responses ($F(1,20) = .01$, ns). No main effect of incentive magnitude was found for mean reaction times ($F(3,60) = .58$, ns), variability of reaction times ($F(3,54) = 1.5$, ns), or proportion of premature responses ($F(3,60) = 1.6$, ns). Although there was a main effect of incentive magnitude on hit rate ($F(3,60) = 6.3$, $p = .001$) due to somewhat lower hit rates in the non-gain versus gain conditions and non-loss versus loss conditions, this effect did not interact with group ($F(3,18) = 1.16$, ns). Incentive magnitude did not interact with group for any of the performance measures.

Full Brain fMRI Analyses for Reward Anticipation

See Tables 1 and 2 for the results of whole brain analyses.

Table 1. Patterns of Activation for Contrasts of BOLD Signal Immediately Following Cue Presentation for Gain Trials Versus Control Trials: ADHD Group.

p<.0001 ^a			p<.001 ^b		
Talairach coordinates	Area	Side	Talairach coordinates	Area	Side
-24,-32,55	Postcentral gyrus	Left	23,0,67	Middle frontal gyrus	Right
			-44,-11,53	Precentral gyrus	Left
			-45,-23,53	Precentral gyrus	Left
			-13,-13,6	Ventrolateral thalamus	Left
			-1,-14,13	Dorsomedial thalamus	Left
			9,-15,-5	Subthalamic nucleus	Right
			-17,-23,61	Precentral gyrus	Left
			15,-28,61	Precentral gyrus	Right
			-1,-29,-3	Brainstem	
			-24,-32,54	Postcentral gyrus	Left
			19,-45,18	Superior cerebellum	Right
			8,-50,62	Precuneus	Right
			-9,-53,59	Precuneus	Left

6,-55,-8	Superior	Right
	cerebellum	
0,-61,-18	Posterior	
	cerebellum	

^aMinimum cluster size is 2 functional voxels of 3x3x4 mm each; ^bMinimum cluster size is 3 functional voxels of 3x3x4 mm each.

Table 2. Patterns of Activation for Contrasts of BOLD Signal Immediately Following Cue Presentation for Gain Trials Versus Control Trials: Control Group.

p<.0001 ^a			p<.001 ^b		
Talairach coordinates	Area	Side	Talairach coordinates	Area	Side
10,9,2	Ventral striatum	Right	30,21,9	Insula	Right
			-34,18,12	Insula	Left
-12,5,3	Ventral striatum	Left	11,9,2	Ventral Striatum	Right
			-14,8,5	Ventral Striatum	Left
30,-82,30	Superior occipital gyrus	Right	11,7,9	Caudate nucleus	Right
			-10,2,0	Globus pallidus	Left
			-21,2,1	Putamen	Left
			-41,-43,46	Superior parietal lobe	Left
			-1,-32,-41	Brainstem	
			6,-73,14	Cuneus	Right
			-28,-75,19	Middle occipital gyrus	Left
			30,-81,3	Inferior occipital gyrus	Right
			-21,-86,-4	gyrus	Left
			30,-81,31	Superior occipital gyrus	Right

-24,-85,29	Superior occipital gyrus	Left
-29,-43,-36	Anterior cerebellum	Left
-13,-43,-39	Anterior cerebellum	Left
-9,-77,-27	Posterior cerebellum	Left
0,-56,-3	Superior cerebellum	

^aMinimum cluster size is 2 functional voxels of 3x3x4 mm each; ^bMinimum cluster size is 3 functional voxels of 3x3x4 mm each.