

## **Cortical Thickness and Folding Deficits in Conduct-Disordered Adolescents**

### ***Supplemental Information***

#### **Supplementary Discussion**

##### *Additional cortical thickness findings*

Our cortical thickness deficit findings in right precuneus is also of interest due to prior evidence suggesting that the precuneus is involved in self-awareness (1, 2), the ability to assess one's behavior relative to others' as well as take a third-person versus first-person point of view (2) and the ability to form judgments based on empathy and forgiveness (3). Structural and functional impairment in the precuneus may predispose an individual to a lack of empathy and the ability to take another's perspective, traits commonly associated with an antisocial personality.

Our finding of reduced cortical thickness in CD youth in the paracentral lobule, a region associated with somatic sensory processing (4), could indicate a dysfunctional somatic or "body" loop resulting in impaired decision-making (5, 6). This theory follows from the somatic marker hypothesis (5), which states that decision-making involves emotionally-provoked somatosensory responses to the situation at-hand in order to determine the prospective consequences of an action. Work to date has focused primarily on insular and other frontal lobe cortex, but if somatic responses are impaired due to dysfunction in any part of the somatosensory loop (e.g., ventromedial prefrontal cortex, limbic regions and somatosensory cortices, including paracentral lobule), it might impair decision-making.

**Table S1.** Regions with measured cortical thickness differences between childhood and adolescent-onset conduct disorder subjects, thresholded at  $p < 0.05$  whole-brain uncorrected.

Left Hemisphere: Cortical Thickness: Childhood-onset vs. Adolescent-onset					
<b>Anatomical Region</b>	<b>Max <math>-\log_{10}(p\text{-value})</math></b>	<b>Area (mm<sup>2</sup>)</b>	<b>Talairach (x, y, z) maxima</b>		
Rostral middle frontal	-2.87	363	-23	49	19
Posterior cingulate	2.59	109	-5	-16	29
Rostral anterior cingulate	-2.55	226	-6	31	-8
Lingual	2.55	365	-23	-49	-6
Inferior parietal	2.41	469	-40	-71	16
Rostral middle frontal	-2.35	223	-35	41	22
Lateral occipital	2.27	224	-25	-91	-14
Middle temporal	-2.26	107	-52	-3	-31
Superior temporal	2.18	280	-51	-41	16
Middle temporal	1.99	146	-48	-27	-10

  

Right Hemisphere: Cortical Thickness: Childhood-onset vs. Adolescent-onset					
<b>Anatomical Region</b>	<b>Max <math>-\log_{10}(p\text{-value})</math></b>	<b>Area (mm<sup>2</sup>)</b>	<b>Talairach (x, y, z) maxima</b>		
Precentral	-4.46	324	49	1	32
Lingual	3.98	1195	25	-70	-4
Postcentral	-3.46	131	48	-16	36
Superior frontal	2.94	370	17	50	27
Superior temporal	-2.90	269	51	-13	-3
Posterior cingulate	2.72	171	5	-27	33
Inferior parietal	-2.59	273	52	-50	27
Middle temporal	2.42	127	48	-3	-31
Inferior temporal	2.21	138	53	-51	-18
Caudal anterior cingulate	-2.11	148	8	28	18
Supramarginal	-1.77	235	55	-25	37
Lateral occipital	1.61	137	36	-82	-13

## Supplementary References

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