

Supplementary Data

SUPPLEMENTARY TABLE S1. FUNCTIONAL CONNECTIVITY OF THE EXECUTIVE FUNCTIONS NETWORK AND READING-RELATED REGIONS (SUPPORTING COGNITIVE ABILITY) IN CHILDREN WITH READING DIFFICULTIES AND TYPICAL READERS, AND THE DIFFERENCE BETWEEN THE TWO READING GROUPS

<i>Condition</i>	<i>Cognitive ability</i>	<i>Target BA (ROI)</i>	<i>Regions</i>	<i>T</i>	<i>p value (p < 0.05 FDR corrected)</i>			
Typical readers	Visual	L BA 19	Associative visual cortex	12.23	0.000000			
		R BA 19	Associative visual cortex	6.90	0.000001			
		L BA 18	Secondary visual cortex	9.68	0.000000			
		R BA 18	Secondary visual cortex	6.41	0.000002			
		R BA 17	Primary visual cortex	3.98	0.000670			
		L BA 17	Primary visual cortex	3.72	0.001243			
	Language		L BA 44	Inferior frontal cortex pars opercularis	17.72	0.000000		
			R BA 44	Inferior frontal cortex pars opercularis	14.34	0.000000		
			R BA 40	Supramarginal gyrus	15.06	0.000000		
			L BA 40	Supramarginal gyrus	14.61	0.000000		
			L BA 7	Somatosensory association cortex	12.16	0.000000		
			R BA 7	Somatosensory association cortex	9.0	0.000000		
			L BA 22	Superior temporal gyrus	12.12	0.000000		
			R BA 22	Superior temporal gyrus	8.63	0.000000		
			L BA 45	Inferior frontal cortex pars triangularis	10.8	0.000000		
			R BA 45	Inferior frontal cortex pars triangularis	11.17	0.000000		
			R BA 47	Inferior prefrontal gyrus	10.32	0.000000		
			L BA 47	Inferior prefrontal gyrus	8.88	0.000000		
			L BA 41	Primary auditory cortex	8.65	0.000000		
			R BA 41	Primary auditory cortex	5.77	0.000009		
			L BA 42	Primary auditory cortex	8.28	0.000000		
			R BA 42	Primary auditory cortex	4.9	0.000075		
			L BA 39	Angular gyrus	7.52	0.000000		
			R BA 39	Angular gyrus	6.36	0.000002		
			L BA 21	Middle temporal gyrus	4.28	0.000329		
			R BA 21	Middle temporal gyrus	4.77	0.000102		
			L BA 13	Insular cortex	17.14	0.000000		
			R BA 13	Insular cortex	18.95	0.000000		
			L BA 20	Inferior temporal gyrus	4.97	0.000064		
			R BA 20	Inferior temporal gyrus	4.17	0.000428		
			L BA 37	Fusiform gyrus	6.79	0.000001		
			R BA 37	Fusiform gyrus	4.3	0.000321		
			Cognitive control		R BA 9	Dorsolateral prefrontal cortex	18.28	0.000000
					L BA 9	Dorsolateral prefrontal cortex	17.5	0.000000
					L BA 24	Ventral anterior cingulate cortex	15.47	0.000000
					R BA 24	Ventral anterior cingulate cortex	11.81	0.000000
					L BA 46	Dorsolateral prefrontal cortex	16.11	0.000000
					R BA 46	Dorsolateral prefrontal cortex	13.33	0.000000
					L BA 32	Dorsal anterior cingulate cortex	11.78	0.000000
					R BA 32	Dorsal anterior cingulate cortex	10.45	0.000000
					L BA 8	Dorsal frontal cortex	8.87	0.000000
					R BA 8	Dorsal frontal cortex	11.22	0.000000
L BA 10	Anterior prefrontal cortex	9.47			0.000000			
R BA 10	Anterior prefrontal cortex	8.58			0.000000			
L BA 2	Primary somatosensory cortex	9.16			0.000000			
R BA 2	Primary somatosensory cortex	7.19			0.000000			
L BA 23	Ventral posterior cingulate cortex	6.8			0.000001			
R BA 23	Ventral posterior cingulate cortex	5.78			0.000009			
L BA 30	Cingulate cortex	3.7			0.001307			
R BA 30	Cingulate cortex	3.25			0.003898			
L BA 31	Dorsal posterior cingulate cortex	6.53			0.000002			
R BA 31	Dorsal posterior cingulate cortex	5.87			0.000007			
L BA 33	Anterior cingulate cortex	5.13	0.000044					

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SUPPLEMENTARY TABLE S1. (CONTINUED)

<i>Condition</i>	<i>Cognitive ability</i>	<i>Target BA (ROI)</i>	<i>Regions</i>	<i>T</i>	<i>p value (p < 0.05 FDR corrected)</i>
		R BA 33	Anterior cingulate cortex	4.92	0.000072
		L BA 6	Premotor cortex	15.18	0.000000
		R BA 6	Premotor cortex	13.53	0.000000
		L BA 4	Primary motor cortex	9.72	0.000000
		R BA 4	Primary motor cortex	6.41	0.000002
		L BA 5	Somatosensory association cortex	8.86	0.000000
		R BA 5	Somatosensory association cortex	6.94	0.000001
		L BA 3	Primary somatosensory cortex	6.19	0.000003
		R BA 3	Primary somatosensory cortex	4.82	0.000090
		L BA 28	Posterior entorhinal cortex	4.62	0.000147
		R BA 28	Posterior entorhinal cortex	2.8	0.010826
		L BA 34	Anterior entorhinal cortex	4.59	0.000157
		R BA 34	Anterior entorhinal cortex	3.98	0.000670
		L BA 43	Subcentral area	4.31	0.000320
		R BA 43	Subcentral area	5.81	0.000008
		L BA 38	Temporopolar area	3.49	0.002167
		R BA 38	Temporopolar area	4.13	0.000474
		L BA 36	Parahippocampal cortex	3.11	0.005449
		R BA 36	Parahippocampal cortex	3.75	0.001175
		L BA 1	Primary somatosensory cortex	2.12	0.047975
		R BA 1	Primary somatosensory cortex	3.8	0.001046
		L BA 29	Retrosplenial cingulate cortex	3.07	0.005937
		R BA 29	Retrosplenial cingulate cortex	2.27	0.035182
		L BA 11	Orbitofrontal cortex	2.84	0.010096
Children with RD	Visual	L BA 19	Associative visual cortex	9.53	0.000000
		R BA 19	Associative visual cortex	7.58	0.000002
		L BA 18	Secondary visual cortex	6.52	0.000008
		R BA 18	Secondary visual cortex	7.57	0.000001
		R BA 17	Primary visual cortex	4.11	0.000909
		L BA 17	Primary visual cortex	4.56	0.000368
	Language	L BA 44	Inferior frontal cortex pars opercularis	9.71	0.000000
		R BA 44	Inferior frontal cortex pars opercularis	8.73	0.000000
		R BA 40	Supramarginal gyrus	11.62	0.000000
		L BA 40	Supramarginal gyrus	14.45	0.000000
		L BA 7	Somatosensory association cortex	12.12	0.000000
		R BA 7	Somatosensory association cortex	10.23	0.000000
		L BA 22	Superior temporal gyrus	6.76	0.000006
		R BA 22	Superior temporal gyrus	6.58	0.000007
		L BA 45	Inferior frontal cortex pars triangularis	6.69	0.000007
		R BA 45	Inferior frontal cortex pars triangularis	6.42	0.000010
		R BA 47	Inferior prefrontal gyrus	8.24	0.000001
		L BA 47	Inferior prefrontal gyrus	5.41	0.000065
		L BA 41	Primary auditory cortex	6.06	0.000018
		R BA 41	Primary auditory cortex	4.48	0.000428
		L BA 42	Primary auditory cortex	6.59	0.000007
		R BA 42	Primary auditory cortex	5.21	0.000096
		L BA 39	Angular gyrus	7.87	0.000001
		R BA 39	Angular gyrus	7.18	0.000003
		L BA 21	Middle temporal gyrus	5.94	0.000023
		R BA 21	Middle temporal gyrus	6.93	0.000005
		L BA 13	Insular cortex	9.46	0.000000
		R BA 13	Insular cortex	10.17	0.000000
		L BA 20	Inferior temporal gyrus	3.48	0.003218
		R BA 20	Inferior temporal gyrus	4.30	0.000597
		L BA 37	Fusiform gyrus	6.70	0.000007
		R BA 37	Fusiform gyrus	6.38	0.000010
	Cognitive control	R BA 9	Dorsolateral prefrontal cortex	12.76	0.000000
		L BA 9	Dorsolateral prefrontal cortex	11.85	0.000000
		L BA 24	Ventral anterior cingulate cortex	9.13	0.000000
		R BA 24	Ventral anterior cingulate cortex	7.74	0.000001

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SUPPLEMENTARY TABLE S1. (CONTINUED)

<i>Condition</i>	<i>Cognitive ability</i>	<i>Target BA (ROI)</i>	<i>Regions</i>	<i>T</i>	<i>p value (p < 0.05 FDR corrected)</i>
		L BA 46	Dorsolateral prefrontal cortex	11.28	0.000000
		R BA 46	Dorsolateral prefrontal cortex	6.68	0.000007
		L BA 32	Dorsal anterior cingulate cortex	10.6	0.000000
		R BA 32	Dorsal anterior cingulate cortex	9.84	0.000000
		L BA 8	Dorsal frontal cortex	11.09	0.000000
		R BA 8	Dorsal frontal cortex	11.55	0.000000
		L BA 10	Anterior prefrontal cortex	6.03	0.000019
		R BA 10	Anterior prefrontal cortex	6.63	0.000007
		L BA 2	Primary somatosensory cortex	8.89	0.000000
		R BA 2	Primary somatosensory cortex	6.7	0.000007
		L BA 23	Ventral posterior cingulate cortex	5.44	0.000063
		R BA 23	Ventral posterior cingulate cortex	5.0	0.000143
		L BA 30	Cingulate cortex	4.33	0.000573
		R BA 30	Cingulate cortex	4.73	0.000253
		L BA 31	Dorsal posterior cingulate cortex	7.4	0.000002
		R BA 31	Dorsal posterior cingulate cortex	7.65	0.000001
		L BA 33	Anterior cingulate cortex	3.6	0.002567
		L BA 29	Retrosplenial cingulate cortex	3.58	0.002639
		R BA 29	Retrosplenial cingulate cortex	4.05	0.001028
		L BA 6	Premotor cortex	11.67	0.000000
		R BA 6	Premotor cortex	10.54	0.000000
		L BA 4	Primary motor cortex	6.37	0.000010
		R BA 4	Primary motor cortex	5.52	0.000053
		L BA 5	Somatosensory association cortex	6.7	0.000007
		R BA 5	Somatosensory association cortex	7.72	0.000001
		L BA 3	Primary somatosensory cortex	5.22	0.000095
		R BA 3	Primary somatosensory cortex	5.19	0.000098
		L BA 28	Posterior entorhinal cortex	2.33	0.034307
		R BA 28	Posterior entorhinal cortex	3.54	0.002867
		L BA 34	Anterior entorhinal cortex	2.38	0.030894
		R BA 34	Anterior entorhinal cortex	3.1	0.007368
		L BA 43	Subcentral area	3.75	0.001914
		R BA 43	Subcentral area	6.87	0.000005
		L BA 38	Temporopolar area	2.96	0.009723
		R BA 38	Temporopolar area	3.72	0.002019
		L BA 36	Parahippocampal cortex	2.88	0.011552
		R BA 36	Parahippocampal cortex	4.34	0.000573
		L BA 1	Primary somatosensory cortex	3.96	0.001213
		R BA 1	Primary somatosensory cortex	2.82	0.012935
		L BA 35	Perirhinal cortex	2.72	0.015581
		R BA 35	Perirhinal cortex	3.64	0.002362
		R BA 27	Piriform cortex	2.46	0.026690
Contrast RD > TR ^a	Visual	R BA 18	Secondary visual cortex	-3.47	0.035179
		R BA 19	Associative visual cortex	-3.27	0.043536
		L BA 19	Associative visual cortex	-2.88	0.043536
	Language	L BA 7	Somatosensory associated cortex	-3.06	0.043536
		R BA 21	Middle temporal gyrus	-2.95	0.043536
		L BA 39	Angular gyrus	-2.91	0.043536
	Cognitive control	L BA 31	Dorsal posterior cingulate cortex	3.55	0.035179
		L BA 2	Primary somatosensory cortex	-3.45	0.035179
		R BA 9	Dorsolateral prefrontal cortex	-3.10	0.043536
		R BA 35	Perirhinal cortex	-2.99	0.043536
		R BA 43	Subcentral area	-2.96	0.043536
		L BA 8	Dorsal frontal cortex	-2.88	0.043536
		R BA 31	Dorsal posterior cingulate cortex	-2.83	0.045220
		R BA 30	Cingulate cortex	-2.76	0.050516

^aThe opposite contrast (TR > RD) resulted in nonsignificant results.

BA, Brodmann area; FDR, false discovery rate; RD, children with reading difficulties; ROI, regions of interest; TR, typical readers.