Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

Table S1. Spearman correlations NEPSY-II-NL subtestscores and corresponding domainscore (*n*=1,307)

		Overall score	Attention and Executive Functioning domain score	Language domain score	Memory and Learning domain score	Sensorimotor Functioning domain score I: speed accuracy interaction	Sensorimotor Functioning domain score II: pencillifts	Visuospatial Processing domain score
Auditory Attention								
	Total score	0.56*	0.61*	n/a	n/a	n/a	n/a	n/a
	Commission errors	-0.41*	-0.42*	n/a	n/a	n/a	n/a	n/a
	Omission errors	-0.56*	-0.61*	n/a	n/a	n/a	n/a	n/a
	Inhibition errors	-0.26*	-0.29*	n/a	n/a	n/a	n/a	n/a
Response Set								
	Total score	0.70*	0.80*	n/a	n/a	n/a	n/a	n/a
	Commission errors	-0.59*	-0.68*	n/a	n/a	n/a	n/a	n/a
	Omission errors	-0.70*	-0.80*	n/a	n/a	n/a	n/a	n/a
	Inhibition errors	-0.49*	-0.53*	n/a	n/a	n/a	n/a	n/a
Statue								
	Total score	0.33*	0.48*	n/a	n/a	n/a	n/a	n/a
	Total movements	-0.30*	-0.42*	n/a	n/a	n/a	n/a	n/a
	Total sounds	-0.18*	-0.32*	n/a	n/a	n/a	n/a	n/a
	Total eye openings	-0.28*	-0.41*	n/a	n/a	n/a	n/a	n/a
Word Generation								
	Total of correct words Animals	0.55*	n/a	0.85*	n/a	n/a	n/a	n/a
	Total of correct words Foods/Drinks	0.54*	n/a	0.87*	n/a	n/a	n/a	n/a
Memory for Faces								

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

	Total score	0.34*	n/a	n/a	0.52*	n/a	n/a	n/a
Memory for Faces – delayed								
	Total score	0.33*	n/a	n/a	0.50*	n/a	n/a	n/a
Narrative Memory								
	Total score free and cued recall	0.62*	n/a	n/a	0.82*	n/a	n/a	n/a
	Total score free recall	0.66*	n/a	n/a	0.84*	n/a	n/a	n/a
	Total score recognition	0.41*	n/a	n/a	0.56*	n/a	n/a	n/a
Visuomotor Precision								
	Total speed accuracy interaction score	-0.53*	n/a	n/a	n/a	-0.96*	n/a	n/a
	Total pencil lifts	-0.04	n/a	n/a	n/a	n/a	-0.99*	n/a
Arrows								
	Total score	0.47*	n/a	n/a	n/a	n/a	n/a	0.83*
Geometric Puzzles								
	Total score	0.32*	n/a	n/a	n/a	n/a	n/a	0.63*
Route Finding								
	Total score	0.56*	n/a	n/a	n/a	n/a	n/a	0.75*
% variance explained first component PCA		25.15	35.41	78.61	50.90	n/a	n/a	58.86

Note. NEPSY = neuropsychological assessment. n/a = not applicable. *p<0.01

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

Table S2. Association between CBCL ADHP score* and NEPSY-II-NL overall- and domainscores

	Overall score*			**Attention and Executive Functioning domain score***			**Language domain score**			**Memory and Learning domain score**		
	B (95% CI)	**β**	***p***	**B (95% CI)**	**β**	***p***	**B (95% CI)**	**β**	***p***	**B (95% CI)**	**β**	***p***
Model I (unadjusted)	-0.04 (-0.06;-0.02)	-0.12	<0.001	-0.06 (-0.08;-0.03)	-0.15	<0.001	-0.04 (-0.12;0.05)	-0.03	0.44	-0.00 (-0.09;0.08)	-0.00	0.95
Model II (adjusted)	-0.02 (-0.04;0.01)	-0.05	0.18	-0.04 (-0.07;-0.02)	-0.12	0.002	0.05 (-0.04;0.14)	0.04	0.29	0.06 (-0.03;0.15)	0.05	0.17
Model II+IQ	-0.01 (-0.03;0.01)	-0.03	0.44	-0.04 (-0.07;-0.01)	-0.11	0.004	0.06 (-0.03;0.15)	0.05	0.19	0.08 (-0.01;0.17)	0.07	0.07

	Sensorimotor Functioning domain score I: speed accuracy interaction			**Sensorimotor Functioning domain score II: pencil lifts**			**Visuospatial Processing domain score***		
	B (95% CI)	**β**	***p***	**B (95% CI)**	**β**	***p***	**B (95% CI)**	**β**	***p***
Model I (unadjusted)	-0.03 (-0.05;-0.01)	-0.09	0.01	-0.03 (-0.06;0.01)	-0.05	0.13	-0.02 (-0.04;0.01)	-0.05	0.19
Model II (adjusted)	-0.02 (-0.04;0.01)	-0.05	0.15	-0.03 (-0.06;0.01)	-0.06	0.12	0.00 (-0.02;0.03)	0.01	0.84
Model II + IQ	-0.01 (-0.04;0.01)	-0.05	0.22	-0.03 (-0.07;0.01)	-0.06	0.09	0.02 (-0.01;0.04)	0.04	0.22

Note. CBCL = Child Behavior Checklist; ADHP = attention-deficit/hyperactivity problems; NEPSY = neuropsychological assessment. Both determinant (CBCL) and outcome (NEPSY) were residualized for age during assessment in all models. Model I is unadjusted. Model II was adjusted for child gender, ethnicity, gestational age at birth, birth weight, psychostimulant use, maternal education, drinking during pregnancy, smoking during pregnancy and household income. The B's are not interpretable since square root transformed scores (*) were used in the analyses. A higher CBCL ADHP score indicates more attention and hyperactivity problems, a higher NEPSY score indicates better functioning.

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

Table S3. Vertex-wise analyses of CBCL ADHP score and NEPSY-II-NL ATT/EF score with cortical morphology

	Cluster size (mm^2)	Talairach coordinates			No. of vertices within cluster	Clusterwise (corrected) *p*-value
		TalX	TalY	TalZ		
CBCL ADHP & cortical thickness						
Left Hemisphere						
Caudal middlefrontal	1049.32	-34.1	6.8	20.0	2039	0.009
Right Hemisphere						
Postcentral	6397.91	49.3	-13.2	47.9	15175	<0.001
Lateral occipital	1940.74	26.4	-91.9	13.1	2766	<0.001
Superior temporal	1470.95	48.1	-16.0	-7.8	3118	<0.001
Cuneus	1677.35	11.5	-69.9	23.1	2529	<0.001
NEPSY-II-NL ATT/EF & cortical thickness						
Left Hemisphere						
none	N/A	N/A	N/A	N/A	N/A	N/A
Right Hemisphere						
none	N/A	N/A	N/A	N/A	N/A	N/A
CBCL ADHP & gyrification						
Left Hemisphere						
Frontal/temporal/parietal (LH1)	37822.11	-4.9	-62.3	26.6	74434	<0.001
Superior parietal/postcentral (LH2)	3903.37	-35.0	-29.7	61.0	9520	<0.001
Right Hemisphere						
Frontal/temporal/parietal (RH1)	36480.54	20.8	24.5	49.5	74882	<0.001
NEPSY-II-NL ATT/EF & gyrification						
Left Hemisphere						
Inferior parietal (LH3)	4359.38	-39.8	-77.9	19.2	8686	<0.001
Frontal (LH4)	1933.25	-21.6	52.9	2.2	2880	0.04
Right Hemisphere						
Frontal/parietal (RH2)	12178.87	22.8	-4.6	44.1	26051	<0.001
Frontal/temporal (RH3)	6222.21	44.2	35.6	-1.1	14233	<0.001
Occipital (RH4)	2489.04	31.6	-77.6	-4.1	3333	0.01

Note. CBCL = Child Behavior Checklist; ADHP = attention-deficit/hyperactivity problems; NEPSY = neuropsychological assessment; ATT/EF = Attention and Executive Functioning. The CBCL and NEPSY scores were square root transformed. Analyses corrected for gender, age during scanning used as nuisance factor. Monte Carlo Simulation ($p<0.05$) was applied to correct for multiple testing. TalX = Talairach region X plane; TalY = Talairach region Y plane; TalZ = Talairach region Z plane.

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

Table S4. Gender stratified cluster-wise regression analyses of the association between CBCL ADHP score, NEPSY-II-NL ATT/EF score and cortical thickness

	DETECTION BOYS (n=407)			**DETECTION GIRLS (n=369)**		
	CBCL ADHP & cortical thickness			**CBCL ADHP & cortical thickness**		
Cluster	**B (95% CI)**	**β**	***p***	**B (95% CI)**	**β**	***p***
Left Hemisphere						
Caudal middle frontal	-0.04 (-0.07;-0.01)	-0.13	0.013	-0.04 (-0.07;-0.01)	-0.15	0.006
Right Hemisphere						
Postcentral	-0.05 (-0.08;-0.03)	-0.25	<0.001	-0.04 (-0.07;-0.02)	-0.20	<0.001
Lateral occipital	-0.06 (-0.09;-0.03)	-0.20	<0.001	-0.05 (-0.07;-0.02)	-0.17	0.001
Superior temporal	-0.05 (-0.09;-0.02)	-0.16	0.017	-0.05 (-0.08;-0.02)	-0.16	0.002
Cuneus	-0.04 (-0.07;-0.02)	-0.16	0.002	-0.04 (-0.07;-0.01)	-0.16	0.003
	NEPSY-II-NL ATT/EF & cortical thickness			**NEPSY-II-NL ATT/EF & cortical thickness**		
Cluster	**B (95% CI)**	**β**	***p***	**B (95% CI)**	**β**	***p***
Left Hemisphere						
none found	-	-	-	-	-	-
Right Hemisphere						
none found	-	-	-	-	-	-

Note. CBCL = Child Behavior Checklist; ADHP = attention-deficit/hyperactivity problems; NEPSY = neuropsychological assessment; ATT/EF = Attention and Executive Functioning. The CBCL ADHP and NEPSY ATT/EF scores were square root transformed, therefore B's are not interpretable. Both determinant (CBCL/NEPSY) and outcome (thickness) were residualized for age during assessment/scanning. Analyses adjusted for child gender, ethnicity, gestational age at birth, birth weight, psychostimulant use, IQ, maternal education, drinking during pregnancy, smoking during pregnancy and household income. A higher CBCL ADHP score indicates more attention and hyperactivity symptoms, a higher NEPSY score indicates better functioning.

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

Table S5. Gender stratified cluster-wise regression analyses of the association between CBCL ADHP score, NEPSY-II-NL ATT/EF score and gyrification

	DETECTION BOYS (n=407)			**DETECTION GIRLS (n=369)**		
	CBCL ADHP & gyrification			**CBCL ADHP & gyrification**		
Cluster	**B (95% CI)**	**β**	***p***	**B (95% CI)**	**β**	***p***
Left Hemisphere						
Frontal/temporal/parietal (LH1)	-0.04 (-0.06;-0.01)	-0.15	0.006	-0.03 (-0.06;-0.01)	-0.14	0.010
Superior parietal/postcentral (LH2)	-0.04 (-0.08;0.00)	-0.11	0.057	-0.04 (-0.07;-0.00)	-0.12	0.034
Right Hemisphere						
Frontal/temporal/parietal (RH1)	-0.04 (-0.07;-0.01)	-0.14	0.015	-0.03 (-0.06;-0.01)	-0.13	0.019
	NEPSY-II-NL ATT/EF & gyrification			**CBCL ADHP & gyrification**		
Cluster	**B (95% CI)**	**β**	***p***	**B (95% CI)**	**β**	***p***
Left Hemisphere						
Inferior parietal (LH3)	0.02 (-0.06;0.10)	0.03	0.546	0.12 (0.03;0.20)	0.14	0.007
Frontal (LH4)	0.02 (-0.03;0.08)	0.04	0.431	0.09 (0.03;0.15)	0.15	0.006
Right Hemisphere						
Frontal/parietal (RH2)	0.08 (-0.01;0.17)	0.10	0.075	0.11 (0.03;0.19)	0.15	0.010
Frontal/temporal (RH3)	0.02 (-0.13;0.17)	0.02	0.750	0.22 (0.07;0.36)	0.15	0.004
Occipital (RH4)	-0.01 (-0.09;0.07)	-0.01	0.812	0.16 (0.07;0.24)	0.20	<0.001

Note. CBCL = Child Behavior Checklist; ADHP = attention-deficit/hyperactivity problems; NEPSY = neuropsychological assessment; ATT/EF = Attention and Executive Functioning. The CBCL ADHP and NEPSY ATT/EF scores were square root transformed, therefore B's are not interpretable. Both determinant (CBCL/NEPSY) and outcome (gyrification) were residualized for age during assessment/scanning. Analyses adjusted for child gender, ethnicity, gestational age at birth, birth weight, psychostimulant use, IQ, maternal education, drinking during pregnancy, smoking during pregnancy and household income. A higher CBCL ADHP score indicates more attention and hyperactivity symptoms, a higher NEPSY score indicates better functioning.

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

Table S6. Cluster-wise regression analyses of the association between CBCL ADHP score, NEPSY-II-NL ATT/EF score and cortical thickness, without children scoring above clinical CBCL cut-off (n=744)

	DETECTION CBCL ADHP & cortical thickness		
Cluster	**B (95% CI)**	**β**	***p***
Left Hemisphere			
Caudal middle frontal	-0.04 (-0.06;-0.02)	-0.13	<0.001
Right Hemisphere			
Postcentral	-0.05 (-0.06;-0.03)	-0.20	<0.001
Lateral occipital	-0.05 (-0.07;-0.02)	-0.16	<0.001
Superior temporal	-0.05 (-0.08;-0.03)	-0.15	<0.001
Cuneus	-0.05 (-0.07;-0.02)	-0.16	<0.001

	NEPSY-II-NL ATT/EF & cortical thickness		
Cluster	**B (95% CI)**	**β**	***p***
Left Hemisphere			
none found	-	-	-
Right Hemisphere			
none found	-	-	-

Note. CBCL = Child Behavior Checklist; ADHP = attention-deficit/hyperactivity problems; NEPSY = neuropsychological assessment; ATT/EF = Attention and Executive Functioning. The CBCL ADHP and NEPSY ATT/EF scores were square root transformed, therefore B's are not interpretable. Both determinant (CBCL/NEPSY) and outcome (thickness) were residualized for age during assessment/scanning. Analyses adjusted for child gender, ethnicity, gestational age at birth, birth weight, psychostimulant use, IQ, maternal education, drinking during pregnancy, smoking during pregnancy and household income. A higher CBCL ADHP score indicates more attention and hyperactivity symptoms, a higher NEPSY score indicates better functioning.

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

Table S7. Cluster-wise regression analyses of the association between CBCL ADHP score, NEPSY-II-NL ATT/EF score and gyrification, without children scoring above clinical CBCL cut-off (n=744)

	DETECTION CBCL ADHP & gyrification		
Cluster	**B (95% CI)**	**β**	***p***
Left Hemisphere			
Frontal/temporal/parietal (LH1)	-0.04 (-0.06;-0.02)	-0.16	<0.001
Superior parietal/postcentral (LH2)	-0.04 (-0.06;-0.01)	-0.11	0.007
Right Hemisphere			
Frontal/temporal/parietal (RH1)	-0.04 (-0.06;-0.02)	-0.14	<0.001

	NEPSY-II-NL ATT/EF & gyrification		
Cluster	**B (95% CI)**	**β**	***p***
Left Hemisphere			
Inferior parietal (LH3)	0.07 (0.01;0.13)	0.09	0.021
Frontal (LH4)	0.06 (0.02;0.11)	0.11	0.005
Right Hemisphere			
Frontal/parietal (RH2)	0.11 (0.04;0.17)	0.13	0.001
Frontal/temporal (RH3)	0.10 (-0.01;0.21)	0.07	0.073
Occipital (RH4)	0.07 (0.06;0.12)	0.08	0.030

Note. CBCL = Child Behavior Checklist; ADHP = attention-deficit/hyperactivity problems; NEPSY = neuropsychological assessment; ATT/EF = Attention and Executive Functioning. The CBCL ADHP and NEPSY ATT/EF scores were square root transformed, therefore B's are not interpretable. Both determinant (CBCL/NEPSY) and outcome (gyrification) were residualized for age during assessment/scanning. Analyses adjusted for child gender, ethnicity, gestational age at birth, birth weight, psychostimulant use, IQ, maternal education, drinking during pregnancy, smoking during pregnancy and household income. A higher CBCL ADHP score indicates more attention and hyperactivity symptoms, a higher NEPSY score indicates better functioning.

Appendix 1 to Mous SE, White T, Muetzel RL, et al. Cortical morphology as a shared neurobiological substrate of attention-deficit/hyperactivity symptoms and executive functioning: a population-based pediatric neuroimaging study. *J Psychiatry Neurosci* 2016.

DOI: 10.1503/jpn.150371

Online appendices are unedited and posted as supplied by the authors.

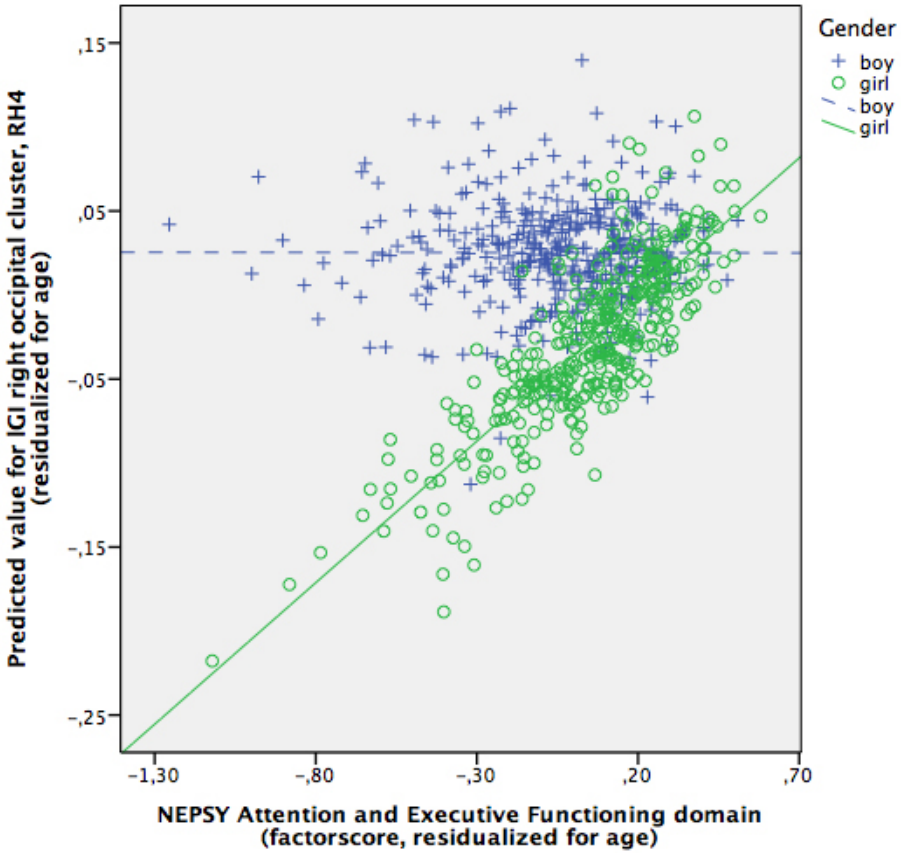

Fig. S1: Gender interaction effec association NEPSY Attention and EF score and right hemisphere occipital gyrification cluster (RHG).