





Fig. S2 Mean power density spectra averaged over all EEG channels (ICA-corrected, average referenced) for attention-deficit/hyperactivity disorder (ADHD) and control (CTRL) groups during (A) eyes-closed (ec) and (B) eyes-open (eo) conditions. For display purposes, absolute power density values [$\mu V^2/\text{Hz}$] are shown on a logarithmic scale. The frequency bands (delta: 1.5-3.5 Hz, theta: 3.5-7.5 Hz, alpha: 7.5-12.5 Hz, beta: 12.5-25 Hz) are indicated below the x-axis

Table S1 Changes of resting EEG power during development for children from 8.5 to 16 years

Electrode	δ		θ		α		β		Total power		θ/β	
	ADHD	CTRL	ADHD	CTRL	ADHD	CTRL	ADHD	CTRL	ADHD	CTRL	ADHD	CTRL
Ec												
Fz	-0.592 ***	-0.846 ***	-0.574 **	-0.794 ***	0.088	0.029	-0.006	-0.354	-0.263	-0.621 ***	-0.473 **	-0.362 *
Cz	-0.645 ***	-0.758 ***	-0.615 ***	-0.712 ***	0.043	-0.114	0.077	-0.287	-0.284	-0.524 **	-0.450 *	-0.519 **
Pz	-0.472 **	-0.668 ***	-0.469 **	-0.610 ***	-0.081	-0.180	0.001	-0.256	-0.232	-0.447 *	-0.418 *	-0.446 *
Oz	-0.537 **	-0.718 ***	-0.560 **	-0.560 **	-0.043	-0.098	0.108	-0.295	-0.138	-0.309	-0.461 **	-0.314
Pool	-0.587 ***	-0.811 ***	-0.556 **	-0.725 ***	-0.075	-0.121	0.016	-0.427 *	-0.257	-0.478	-0.386 *	-0.433 *
Eo												
Fz	-0.692 ***	-0.826 ***	-0.501 **	-0.816 ***	0.051	-0.259	-0.086	-0.365 *	-0.363 *	-0.779 ***	-0.277	-0.346
Cz	-0.648 ***	-0.815 ***	-0.515 **	-0.792 ***	0.004	-0.292	0.001	-0.315	-0.275	-0.741 ***	-0.300	-0.490 **
Pz	-0.600 ***	-0.753 ***	-0.466 **	-0.798 ***	0.022	-0.169	-0.009	-0.328	-0.232 *	-0.618 ***	-0.372 *	-0.452 *
Oz	-0.574 ***	-0.821 ***	-0.592 ***	-0.851 ***	0.069	-0.248	0.103	-0.429 *	-0.256	-0.677 ***	-0.599 ***	-0.432 *
Pool	-0.675 **	-0.888 ***	-0.552 **	-0.867 ***	-0.011	-0.292	-0.118	-0.484 **	-0.322	-0.777 ***	-0.302	-0.298

Development of EEG measures (log10 transformed absolute band power and theta/beta ratio based on absolute band power values) for attention-deficit/hyperactivity disorder (ADHD) and control (CTRL) children with eyes-closed (ec) and eyes-open (eo). Linear regression given in r (Pearson's correlation coefficient: proportion of variance explained by age)

Significance of age dependence: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table S2 Summary of ICA-corrected relative theta and beta band power in children

A	Younger children						Older children						All		B	C ADHD status										Age				Cond	Elect																																																																																																																																																																																																																																																		
	ADHD		CTRL		t-test		ADHD		CTRL		t-test		t-test			ADHD status				Age		Cond		x cond										x age		x elect																																																																																																																																																																																																																																													
	(n = 16)		(n = 15)		(16/15)		(n = 16)		(n = 15)		(16/15)		(32/30)			(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)																																																																																																																																																																																																																																											
	M	SD	M	SD	t	p	M	SD	M	SD	t	p	t	p		(η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)	x age (η_p^2)	x cond (η_p^2)

(A) Resting EEG data (ICA-corrected, average referenced) given as mean (M) ± standard deviation (SD) comparing children with attention-deficit/hyperactivity disorder (ADHD) versus healthy control children (CTRL) including post hoc *t*-tests for younger, older and all children (younger + older children). Relative power represented by the percentage [%] of the power in the given frequency band relative to the total power across all frequency bands. (B) Repeated-measures analysis of variance per midline electrode (Fz, Cz, Pz) and EEG measure with between-subjects factors: ADHD status (ADHD, CTRL), age (children, adults) and within-subjects factor condition (cond): eyes-open (eo), eyes-closed (ec). (C) Repeated-measures analysis of variance per EEG measure with electrode (elect) as within-subjects factor. Significances for ADHD and age effects including their interactions: [†] *p* < 0.2; [†] *p* < 0.1; * *p* < 0.05; ** *p* < 0.01; *** *p* < 0.001.

Table S3 Replication analysis using artefact rejection: summary of (approximated linked-ear referenced) absolute theta and beta band power and theta/beta ratio in children

A	Younger children						Older children						All		B	C ADHD status														Age				Cond		Elect													
	ADHD		CTRL		t-test		ADHD		CTRL		t-test		t-test	ADHD status				Age		Cond		x cond				(1, 58)	x cond (1, 58)	x elect (2, 57)	x cond (1, 58)	x elect (2, 57)	x cond (1, 58)	x elect (2, 57)	(1, 58)	x cond (1, 58)	x elect (2, 57)		x cond (1, 58)	x elect (2, 57)											
	(n = 16)		(n = 15)		(16/15)		(n = 16)		(n = 15)		(16/15)			(32/30)				(1, 58)		(1, 58)		(1, 58)		(1, 58)															(1, 58)		(1, 58)		(1, 58)		(1, 58)		(1, 58)		
	M	SD	M	SD	t	p	M	SD	M	SD	t	p		t		p	(1, 58)	x cond (1, 58)	x age (1, 58)	x cond (1, 58)	(1, 58)	x cond (1, 58)	(1, 58)	x cond (1, 58)	x age (1, 58)														x elect (2, 57)	x cond (1, 58)	x elect (2, 57)	x cond (1, 58)	x elect (2, 57)	(1, 58)	x cond (1, 58)	x elect (2, 57)	(1, 58)	x elect (2, 57)	(2, 57)
<i>θ</i> : Absolute power [μV ²]																																																	
Fz	eo	54.03	20.29	56.05	8.95	-0.35	0.73	39.26	15.41	30.16	10.30	1.92	0.06 [†]	0.78	0.44	1.67	1.15	0.90	1.49	33.69***	3.28 [†]	24.58***																											
	ec	67.40	25.63	62.65	18.27	0.59	0.56	43.68	14.25	35.03	12.54	1.79	0.08 [†]	1.18	0.24	(0.028)	(0.019)	(0.015)	(0.025)	(0.367)	(0.054)	(0.298)																											
Cz	eo	63.54	24.89	66.75	14.78	-0.43	0.67	44.01	11.77	35.10	13.41	1.97	0.06 [†]	0.52	0.60	0.51	0.11	1.21	0.06	36.11***	4.14*	46.31***	0.93	0.35	0.89	0.50	0.02	0.36	0.17	0.44	28.54***	4.34*	2.77 [†]	1.28	57.83***	27.09***	27.13***												
	ec	84.54	26.59	85.15	34.86	-0.06	0.96	54.82	16.28	45.55	19.85	1.43	0.16 ⁺	0.56	0.58	(0.009)	(0.002)	(0.020)	(0.001)	(0.384)	(0.067)	(0.444)	(0.016)	(0.006)	(0.015)	(0.017)	(0.000)	(0.012)	(0.006)	(0.015)	(0.330)	(0.070)	(0.089)	(0.043)	(0.499)	(0.487)	(0.488)												
Pz	eo	57.03	25.65	57.06	17.32	0.00	1.00	38.74	19.11	30.04	12.80	1.48	0.15 ⁺	0.76	0.45	0.65	0.22	0.48	0.07	14.93***	3.51 [†]	59.19***																											
	ec	100.97	46.10	99.19	62.46	0.09	0.93	68.26	43.73	52.86	33.39	1.10	0.28	0.66	0.51	(0.011)	(0.004)	(0.008)	(0.001)	(0.001)	(0.057)	(0.505)																											
<i>β</i> : Absolute power [μV ²]																																																	
Fz	eo	17.09	11.60	20.60	15.46	-0.72	0.48	21.91	26.15	13.06	6.43	1.27	0.21	0.63	0.53	0.78	4.57*	1.90 ⁺	0.00	0.05	0.43	3.51 [†]																											
	ec	19.10	13.03	20.03	13.54	-0.20	0.85	24.65	30.94	13.31	7.33	1.38	0.18 ⁺	1.10	0.28	(0.013)	(0.073)	(0.032)	(0.000)	(0.001)	(0.007)	(0.057)																											
Cz	eo	16.81	13.48	15.65	8.68	0.28	0.78	18.07	14.69	11.80	6.19	1.53	0.14 ⁺	1.29	0.20	2.13 ⁺	3.66 [†]	0.79	0.16	0.06	1.96 ⁺	31.94***	1.75 ⁺	4.57*	1.31	0.45	0.00	1.52	1.61	0.29	0.11	0.32	0.31	1.33	35.54***	21.38***	13.14***												
	ec	19.04	14.24	16.71	8.76	0.54	0.59	21.68	17.12	13.63	8.20	1.65	0.11 ⁺	1.62	0.11 ⁺	(0.035)	(0.059)	(0.013)	(0.003)	(0.001)	(0.033)	(0.355)	(0.029)	(0.073)	(0.022)	(0.016)	(0.000)	(0.051)	(0.053)	(0.010)	(0.002)	(0.005)	(0.011)	(0.044)	(0.380)	(0.429)	(0.316)												
Pz	eo	18.15	14.33	16.89	9.29	0.29	0.78	19.89	18.02	11.92	7.24	1.60	0.12 ⁺	1.40	0.17 ⁺	2.42 ⁺	2.28 ⁺	0.81	0.01	0.221	0.03	54.78***																											
	ec	24.74	16.77	21.18	14.02	0.64	0.53	26.13	20.83	16.11	11.01	1.66	0.11 ⁺	1.67	0.10 ⁺	(0.040)	(0.038)	(0.038)	(0.000)	(0.004)	(0.000)	(0.486)																											
<i>θ/β</i> : Ratio																																																	
Fz	eo	3.75	1.61	3.97	2.28	-0.30	0.76	2.78	1.65	2.59	0.94	0.40	0.69	-0.02	0.98	0.02	0.13	0.01	2.32 ⁺	9.57**	0.66	6.09*																											
	ec	4.23	1.74	4.19	2.13	0.05	0.96	2.76	1.42	2.97	1.09	-0.46	0.65	-0.20	0.84	(0.000)	(0.002)	(0.000)	(0.038)	(0.142)	(0.011)	(0.095)																											
Cz	eo	4.74	2.10	5.32	2.53	-0.70	0.49	3.53	2.18	3.33	1.32	0.31	0.76	-0.33	0.74	0.17	0.04	0.20	1.09	13.04**	4.61*	11.81**	0.15	0.23	0.10	0.28	0.15	0.27	0.41	2.03 ⁺	11.59**	3.28 [†]	4.75*	2.61 [†]	16.04***	7.22**	53.05***												
	ec	5.69	2.55	6.02	2.87	-0.34	0.74	3.54	2.00	3.70	1.30	-0.27	0.79	-0.39	0.70	(0.003)	(0.001)	(0.003)	(0.018)	(0.184)	(0.074)	(0.169)	(0.003)	(0.004)	(0.002)	(0.010)	(0.003)	(0.010)	(0.014)	(0.066)	(0.167)	(0.054)	(0.143)	(0.084)	(0.217)	(0.202)	(0.651)												
Pz	eo	4.06	2.00	4.23	2.20	-0.22	0.82	2.82	1.69	2.94	1.24	-0.23	0.82	-0.30	0.77	0.26	0.39	0.10	0.44	8.81**	2.82 [†]	18.07***																											
	ec	5.10	2.59	5.85	4.11	-0.61	0.55	3.40	2.33	3.50	1.54	-0.14	0.89	-0.57	0.57	(0.005)	(0.007)	(0.002)	(0.008)	(0.132)	(0.046)	(0.238)																											

(A) Resting EEG data (linked-ear referenced) given as mean (M) ± standard deviation (SD) comparing children with attention-deficit/hyperactivity disorder (ADHD) versus healthy control children (CTRL) including post hoc t-tests for younger, older and all children (younger + older children). (B) Repeated-measures analysis of variance per midline electrode (Fz, Cz, Pz) and EEG measure with between-subjects factors: ADHD status (ADHD, CTRL), age (children, adults) and within-subjects factor condition (cond): eyes-open (eo), eyes-closed (ec). (C) Repeated-measures analysis of variance per EEG measure with electrode (elect) as within-subjects factor. Significances for ADHD and age effects including their interactions: + p < 0.2; † p < 0.1; * p < 0.05; ** p < 0.01; *** p < 0.001.

Table S4 Replication analysis using artefact rejection: summary of (approximated linked-ear referenced) absolute theta and beta band power and theta/beta ratio in children for three scalp regions

A	Younger children							Older children							All			B										C ADHD status										Age				Cond		Reg	
	ADHD		CTRL		t-test			ADHD		CTRL		t-test			t-test			ADHD status				Age		Cond		x cond										Age		Cond		Reg					
	(n = 16)		(n = 15)		(16/15)			(n = 16)		(n = 15)		(16/15)			(32/30)			(1, 58)				(1, 58)		(1, 58)		(1, 58)										(1, 58)		(1, 58)		(2, 57)					
	M	SD	M	SD	t	p	M	SD	M	SD	t	p	t	p	(1, 58)	x cond (1, 58)	x age (1, 58)	x age (1, 58)	x cond (1, 58)	x age (1, 58)	x cond (1, 58)	(1, 58)	(1, 58)	(1, 58)	(1, 58)	x cond (1, 58)	x age (1, 58)	x reg (2, 57)	x cond (1, 58)	x age (2, 57)	x reg (2, 57)	x cond (2, 57)	(1, 58)	x cond (1, 58)	x reg (2, 57)	x cond (2, 57)	(1, 58)	x reg (2, 57)	(2, 57)						
θ : Absolute power [μV^2]																																													
F	eo	33.18	14.23	32.96	4.99	0.06	0.95	22.70	8.23	17.86	5.90	1.87	0.07	1	0.89	0.38	1.82 ⁺	1.28	0.32	1.01	30.19***	2.84 [†]	47.08***																						
	ec	42.16	17.54	38.35	10.38	0.73	0.47	27.16	9.09	22.10	8.54	1.59	0.12	2	1.23	0.22	(0.030)	(0.022)	(0.005)	(0.017)	(0.342)	(0.047)	(0.448)																						
C	eo	38.03	14.97	38.20	8.29	-0.04	0.97	25.85	8.97	20.30	7.63	1.85	0.07	1	0.82	0.41	1.15	0.29	0.85	0.00	30.73***	3.30 [†]	53.96***	1.01	0.41	0.40	0.02	0.07	0.27	0.55	0.97	26.07***	3.44 [†]	2.11 ⁺	1.10	74.71***	31.45***	34.22***							
	ec	48.80	15.76	47.71	19.18	0.17	0.86	32.54	12.22	25.85	11.15	1.59	0.12	2	0.87	0.39	(0.019)	(0.005)	(0.014)	(0.000)	(0.346)	(0.047)	(0.482)	(0.017)	(0.007)	(0.007)	(0.001)	(0.001)	(0.009)	(0.019)	(0.033)	(0.310)	(0.056)	(0.069)	(0.0372)	(0.563)	(0.525)	(0.546)							
P	eo	40.49	18.11	40.79	9.81	-0.06	0.96	26.61	12.88	21.76	9.51	1.19	0.25	0.58	0.56	0.47	0.20	0.19	0.01	16.60***	2.84 [†]	73.72***																							
	ec	71.64	34.68	68.69	33.02	0.24	0.81	47.41	28.54	40.61	24.48	0.71	0.48	0.58	0.56	(0.008)	(0.004)	(0.003)	(0.000)	(0.223)	(0.047)	(0.560)																							
β : Absolute power [μV^2]																																													
F	eo	17.31	10.36	20.88	13.23	-0.84	0.41	21.82	23.44	12.96	6.00	1.42	0.17	+	0.70	0.49	0.85	0.49	2.08 ⁺	1.40	0.112	0.31	15.30***																						
	ec	14.96	9.99	15.09	8.22	-0.04	0.97	18.33	23.95	10.35	5.17	1.26	0.22	1.11	0.27	(0.014)	(0.008)	(0.005)	(0.024)	(0.002)	(0.005)	(0.209)																							
C	eo	28.00	17.38	24.77	18.65	0.50	0.62	18.99	12.94	18.21	14.77	0.16	0.88	0.48	0.63	1.02	0.64	0.03	1.47	2.38 ⁺	4.05 ⁺	19.93***	1.38	1.69 ⁺	0.72	0.03	0.38	0.25	1.59	2.43 [†]	0.72	1.81 ⁺	1.08	2.25 ⁺	4.10*	44.20***	2.24 ⁺								
	ec	17.93	11.53	15.90	8.10	0.56	0.58	18.35	14.12	11.68	7.04	1.65	0.11	+	1.62	0.11	(0.017)	(0.011)	(0.001)	(0.025)	(0.039)	(0.065)	(0.256)	(0.023)	(0.028)	(0.012)	(0.001)	(0.007)	(0.009)	(0.052)	(0.079)	(0.012)	(0.030)	(0.036)	(0.073)	(0.066)	(0.608)	(0.073)							
P	eo	17.31	12.82	15.81	7.35	0.39	0.70	16.90	12.57	13.75	10.19	0.76	0.45	0.84	0.40	1.52	2.28 ⁺	0.30	0.78	0.2	0.02	29.17***																							
	ec	23.09	15.02	20.42	11.05	0.56	0.58	24.10	16.42	16.45	11.80	1.48	0.15	+	1.49	0.14	(0.026)	(0.038)	(0.005)	(0.013)	(0.003)	(0.000)	(0.335)																						
θ/β : Ratio																																													
F	eo	2.18	0.96	2.17	1.19	0.02	0.99	1.49	0.69	1.59	0.73	-0.37	0.71	-0.18	0.86	0.00	0.13	0.15	0.16	9.48**	1.25	72.22***																							
	ec	3.25	1.16	3.09	1.37	0.36	0.72	2.25	1.15	2.35	0.89	-0.28	0.78	0.10	0.92	(0.000)	(0.002)	(0.002)	(0.003)	(0.141)	(0.021)	(0.555)																							
C	eo	2.02	1.61	2.34	1.61	-0.55	0.58	1.86	1.18	1.78	1.18	0.20	0.85	-0.33	0.74	0.07	0.04	0.13	0.29	3.08 [†]	4.64 ⁺	64.18***	0.15	0.01	0.02	0.40	0.19	0.36	0.59	0.05	7.98**	3.63 [†]	2.51 [†]	1.85 ⁺	62.10***	2.42 [†]	10.14***								
	ec	3.45	1.86	3.58	1.77	-0.20	0.84	2.59	1.72	2.59	1.09	-0.02	0.99	-0.16	0.87	(0.001)	(0.001)	(0.002)	(0.005)	(0.050)	(0.074)	(0.525)	(0.003)	(0.000)	(0.000)	(0.014)	0.003	(0.013)	(0.020)	(0.002)	(0.121)	(0.059)	(0.081)	(0.061)	(0.517)	(0.078)	(0.262)								
P	eo	2.90	1.44	3.19	1.77	-0.50	0.62	2.04	1.06	2.08	0.97	-0.12	0.90	-0.47	0.64	0.42	0.26	0.05	0.04	9.69**	2.07 ⁺	18.45***																							
	ec	3.83	1.94	4.22	2.89	-0.45	0.65	2.40	1.52	2.69	1.23	-0.58	0.57	-0.65	0.52	(0.007)	(0.005)	(0.001)	(0.001)	(0.143)	(0.074)	(0.241)																							

(A) Resting EEG data (linked-ear referenced) given as mean (M) ± standard deviation (SD) comparing children with attention-deficit/hyperactivity disorder (ADHD) versus healthy control children (CTRL) including post hoc *t*-tests for younger, older and all children (younger + older children). (B) Repeated-measures analysis of variance per sagittal region (frontal (F), central (C), posterior (P)) and EEG measure with between-subjects factors: ADHD status (ADHD, CTRL), age (children, adults) and within-subjects factor condition (cond): eyes-open (eo), eyes-closed (ec). (C) Repeated-measures analysis of variance per EEG measure with region (reg) as within-subjects factor. Significance for ADHD and age effects including their interactions: + $p < 0.2$; $t p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table S5 Summary of results for theta and beta band power and theta/beta ratio of different studies for electrode Cz

Condition, group	Age	Rec	Ref	Frequency		Theta power [μV ²]				Beta power [μV ²]				Theta/beta ratio				Age [years]				Male/female					
	range	period		bands [Hz]		ADHD		CTRL			ADHD		CTRL			ADHD		CTRL			ADHD		CTRL		ADHD	CTRL	
	Studies	[years]	[s]		Theta	Beta	M	SD	M	SD	ES	M	SD	M	SD	ES	M	SD	M	SD	ES	M	SD	M	SD		
Eyes open, children																											
	Liechti et al., 2012	8-16	180	LE	3.5-7.5	12.5-25.0	53.8	18.3	50.9	14.1	0.17	17.4	14.1	13.7	7.4	0.33	4.14	2.1	4.33	1.9	-0.09	11.1	2.1	11.2	2.1	20/12	18/12
	Lansbergen et al., 2011	6-18	120	M	4.0-7.5	12.5-25.0											5.30		4.80			12.2	3.0	12.5	3.8	49/0	49/0
	Ogrim et al., 2012	7-16		Avg	4.0-8.0	13.0-21.0	11.3	6.5	9.5	6.0	0.29	1.8	1.0	2.1	1.5	-0.24	6.52	0.5	5.00	2.8	0.76					29/13	24/15
	Snyder and Hall, 2008	6-11	600	LE	4.0-7.5	13.0-20.5	31.6	6.4	26.5	5.4	0.86	4.8	2.1	6.8	2.5	-0.87	7.40	3.3	4.30	1.8	1.17					5/3	
		12-15	600	LE	4.0-7.5	13.0-20.5	27.8	6.0	22.8	3.2	1.04	7.4	2.5	10.3	3.0	-1.05	4.10	1.1	2.40	0.6	1.92					5/3	
	Monastra et al., 2001	6-11	90	LE	4.0-8.0	13.0-21.0											6.60		2.70						32/10	^a	
		12-15	90	LE	4.0-8.0	13.0-21.0											5.60		2.00						11/3	^a	
	Bresnahan et al. 1999	6-11	120	LE	4.0-8.0	13.0-30.0	138.0	^a	90.0	^a		23.0	^a	25.0	^a		5.75	^a	3.75	^a		8.7	1.6	9.0	1.8	n=25	n=25
		13-17	120	LE	4.0-8.0	13.0-30.0	85.0	^a	55.0	^a		18.5	^a	18.0	^a		4.30	^a	3.25	^a		13.8	1.2	14.3	1.6	n=25	n=25
	Mean published						58.7		40.8			11.1		12.4			5.70		3.53			11.6		11.9			
Eyes closed, children																											
	Liechti et al., 2012	8-16	180	LE	3.5-7.5	12.5-25.0	69.7	21.4	65.3	27.4	0.18	20.4	15.7	15.2	8.5	0.41	4.62	2.3	4.86	2.1	-0.11	11.1	2.1	11.2	2.1	20/12	18/12
	Gasser et al., 1988 ^b	6-17	180	LE	3.5-7.5	12.5-25.0			62.7					12.7										11.6	2.8		81/77
			180	LE	3.5-7.5	12.5-25.0			65.8					13.0										11.2			
	Lansbergen et al., 2011	6-18	120	M	4.0-7.5	12.5-25.0											5.30		4.70			12.2	3.0	12.5	3.8	49/0	49/0
	Hobbs et al., 2007	14-17		LE	3.5-7.5	12.5-25.0	34.8	16.1	23.1	10.4	0.86	10.9	6.4	9.6	4.0	0.24	3.62	1.4	2.54	0.8	0.95	15.1	0.8	15.4	1.1	15/-	15/-
	Clarke et al., 2001a	8-12	300	LE	3.5-7.5	12.5-25.0			60.0	23.6				13.2	5.3				4.88	1.7						40/40	
	Clarke et al., 2001b	8-12	^c	LE	3.5-7.5	12.5-25.0	57.7	39.8		^d	-0.07	12.5	7.2		^d	-0.12	9.77	5.8		^d	1.14				40/40	40/40	
	Clarke et al., 2001c	8-12	^c	LE	3.5-7.5	12.5-25.0											3.47	^a	1.54	^a				184/-	40/-		
	Clarke et al., 2002a	8-12	1200	LE	3.5-7.5	12.5-25.0	104.4	60.5	57.3	29.8	0.99	10.7	5.1	13.4	6.1	-0.48	10.74	6.3	4.64	1.8	1.32				20/-	20/-	
	Barry et al., 2009	8-12	300	LE	3.5-7.5	12.5-25.0											4.10	1.1	2.40	0.9	1.69	10.5	1.6	10.5	1.5	30/-	30/-
	Dupuy et al., 2011	8-12		LE	3.5-7.5	12.5-25.0	130.0	^a	55.0	^a		13.0	^a	14.0	^a						10.0	1.4	10.0	1.4	-/30	-/30	
	Shi et al., 2012	6-14	600	E	4.0-7.0	13.0-32.0											4.22	1.2	3.41	0.6	0.84	8.5	2.1	8.3	2.0	36/8	36/8
	Mean published						81.7		52.2			11.8		12.6			5.89		3.44			11.2		11.3			
Eyes open, adults																											
	Liechti et al., 2012	32-55	180	LE	3.5-7.5	12.5-25.0	9.3		8.1			8.6		7.7			1.27		1.42			42.7	4.4	44.0	4.7	11/11	11/10
	Bresnahan et al. 1999	20-42	120	LE	4.0-8.0	13.0-30.0	35.0		20.0			20.0		16.0			1.90		1.40			29.8	9.8	32.5	7.7	n=25	n=25
	Bresnahan et al. 2002		120	LE	4.0-8.0	13.0-30.0	31.0	^a	17.0	^a		16.5	^a	12.5	^a		2.00	^a	1.45	^a		31.5	9.2	31.8	8.9	25/25	25/25
	Bresnahan et al. 2006		120	LE	4.0-8.0	13.0-30.0	28.0	^a	18.0	^a		18.0	^a	14.5	^a		2.30	^a	1.40	^a		31.5	9.2	31.8	8.9	25/25	25/25
	Mean published						31.3		18.3			18.2		14.3			2.07		1.42			30.9		32.0			
Eyes closed adults																											
	Liechti et al., 2012	32-55	180	LE	3.5-7.5	12.5-25.0	11.2		11.2			10.7		10.6			1.19		1.50			42.7	4.4	44.0	4.7	11/11	11/10

Note that frequency band power and thus also theta/beta ratio are sensitive not only to age, but also to the definition and the width of the frequency band. Our results are most comparable with the values in bold. Mean (M) \pm standard deviations (SD) for attention-deficit/hyperactivity disorder (ADHD) and control groups (CTRL); LE: linked ears, M: mastoids, Avg: average reference (Ref)

^a Calculated or estimated values on the basis of related information (sex ratio) or graphics and diagrams

^b Calculated on the basis of regression information given in that paper

^c 300 seconds assumed

^d Effect size calculated for the groups of Clarke et al, 2001a and b