TABLE S1 Meta-regression Results for Age, Dose, and Study Quality on Parent and Teacher Reports

Meta-regression exposure duration, parent report, all studies						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	0.000	0.000	0.000	0.001	0.750	.453
Intercept	0.120	0.054	0.014	0.226	2.223	.026
τ^2	0.027					
	Q	**df**	***p***			
Model	0.563	1	.453			
Residual	38.629	17	.002			
Total	39.193	18	.003			
Meta-regression child age, parent report, all studies						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	0.023	0.016	−0.008	0.054	1.461	0.144
Intercept	0.005	0.106	−0.204	0.213	0.042	0.966
τ^2	0.029					
	Q	**df**	***p***			
Model	2.134	1	.144			
Residual	37.059	17	.003			
Total	39.193	18	.003			
Meta-regresssion dose, parent report, all studies[a]						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	0.002	0.001	0.000	0.004	2.120	.034
Intercept	0.064	0.053	−0.039	0.167	1.218	.223
τ^2	0.025					
	Q	**df**	***p***			
Model	4.496	1	.034			
Residual	31.278	15	.008			
Total	35.774	16	.003			
Meta-regresssion dose, parent report, all studies[b]						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	0.000	0.003	−0.005	0.006	0.154	.878
Intercept	0.113	0.089	−0.061	0.286	1.271	.204
	Q	**df**	***p***			
Model	0.024	1	.878			
Residual	30.816	14	.006			
Total	30.839	15	.009			

TABLE S1 Continued

Meta-regression 6-point quality score and parent rating[c]						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	−0.020	0.019	−0.058	0.018	−1.024	.306
Intercept	0.249	0.098	0.056	0.441	2.527	.012
τ^2	0.027					
	Q	**df**	***p***			
Model	1.048	1	.306			
Residual	38.145	17	.002			
Total	39.193	18	.003			
Teacher data age meta-regression						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	0.008	0.019	−0.030	0.046	0.415	.678
Intercept	0.021	0.139	−0.252	0.294	0.151	.880
τ^2	0					
	Q	**Df**	***p***			
Model	0.172	1	0.678			
Residual	5.854	8	0.664			
Total	6.026	9	0.737			
Teacher data dosage meta-regression						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	0.008	0.019	−0.030	0.046	0.415	.678
Intercept	0.021	0.139	−0.252	0.294	0.151	.880
τ^2	0					
	Q	**df**	***p***			
Model	0.172	1	.678			
Residual	5.854	8	.664			
Total	6.026	9	.737			
Teacher data duration of trial meta-regression						
	Estimate	**SE**	**Lower**	**Upper**	**Z**	***p***
Slope	0.008	0.019	−0.030	0.046	0.415	.678
Intercept	0.021	0.139	−0.252	0.294	0.151	.880
τ^2	0					
	Q	**df**	***p***			
Model	0.172	1	.678			
Residual	5.854	8	.664			
Total	6.026	9	.737			

TABLE S1 Continued

Teacher global quality[d]						
	Estimate	**SE**	**Lower**	**Upper**	**z**	***p***
Slope	−0.004	0.027	−0.057	0.048	−0.154	.878
Intercept	0.107	0.135	−0.156	0.371	0.798	.425
τ^2	0					
	Q	**df**	***p***			
Model	0.024	1	.878			
Residual	6.218	8	.623			
Total	6.241	9	.716			

Note: SE = standard error.

[a]*Excludes Rapp[1] (dose no applicable/available, sublingual delivery), David[2] (dose outlier); the significant and slightly positive slope effect indicates a tendency for larger effects with larger doses.*

[b]*Also excludes Pollock et al.,[3] as the next highest outlier, in an effort to ascertain any effect.*

[c]*The quality score gave one point for each of the following: standardized and reliable outcome measure, successful effort to validate blind; well explained and convincing blinding attempt; data presented clearly and completely; analytic approach consistent with* a priori *expectations of analysis (minimal capitalization on chance); and absence of any other obvious or major flaw in the study. The negative slope indicates a slight tendency for higher quality studies to yield smaller effect sizes, but this association was not statistically reliable.*

[d]*The quality score gave one point for each of the following: standardized and reliable outcome measure, successful effort to validate blind; well-explained and convincing blinding attempt; data presented clearly and completely; analytic approach consistent with* a priori *expectations of analysis (minimal capitalization on chance); and absence of any other obvious or major flaw in the study. The negative slope indicates a slight tendency for higher quality studies to yield smaller effect sizes, but this association was trivial in size and not statistically reliable.*

TABLE S2 Details of Reasons for Exclusion and Inclusion of Each Study from Each Analysis

1st Author, Year	Parent	Teacher	Test
Adams, 1981[4]	2	1	1,2,3,
Bateman et al, 2004[5]	3,4	NA	4
Conners, 1980, Ch 5[6]	1	NA	NA
Conners et al, 1980 [7] [a]	NA	NA	1,4
David, 1987[2]	2	2	NA
Goyette et al, 1978a[8] [b]	1	NA	1
Goyette et al, 1978b[8] [c]	1	NA	NA
Gross et al, 1987[9]	NA	NA	NA
Harley et al, 1978[10]	1	1	NA
Levy and Hobbes, 1978[11]	2, 4	NA	NA
Mattes and Gittelman, 1981[12]	1	2	1
McCann et al, 2007a[13]	3, 4	3,4	NA
McCann et al, 2007b[13]	3, 4	3,4	1
Pollock and Warner, 1990[3]	4	NA	NA
Rapp, 1978[1]	2	NA	2
Rowe, 1988[14]	2, 4	NA	NA
Rowe and Rowe, 1994[15]	2, 4	NA	NA
Sarantinos et al, 1990[16]	2	NA	NA
Spring et al, 1981[17]	1	1	NA
Swanson and Kinsbourne, 1980[18]	NA	NA	1
Thorley, 1994[19]	NA	2	NA
Weiss et al, 1980[24]	2	NA	NA
Williams et al, 1978[21]	4	1	NA
Wilson et al, 1989[22]	2	NA	NA
Total possible	20	10	9

Note: Codes for Inclusion in Parent and Teacher/Observer Based analyses: 1 = data used in all analyses; 2 = data used, but excluded from analyses of high quality outcome measures; 3 = data used, but excluded from analyses of "dyes only" (has preservatives); 4 = data used, but excluded from analyses of Food and Drug Administration (FDA) only (has non-FDA colors).

Codes for Inclusion in Test based analyses: 1 = Attention test available (Matching Familiar Figures test, Partially Accelerated Life Test, Continuous Performance Test, Zero Input Tracking Analyzer, or other test); 2 = motor test available; 3 = language test available; 4 = other test available—not classified, excluded, or detailed in Table S3, available online.

[a] *Conners, Newcorn, and Goyette, 1980; same study as Conners, 1980, chapter 6.*

[b] *Same as Conners, 1980, chapter 3*

[c] *Same as Conners, 1980, chapter 4*

TABLE S3 Detailed Data Corresponding to Figure 2 for Each Domain of Outcome

Study	Domain	g	SE	Lower	Upper	z	*p*
Adams, 1981[23]	Parent	0.692	0.196	0.308	1.076	3.531	.000
Bateman et al, 2004[5]	Parent	0.119	0.060	0.001	0.236	1.968	.049
Conners, 1980, Ch 5[6]	Parent	−0.159	0.099	−0.353	0.035	−1.604	.109
David, 1987[2]	Parent	0.000	0.153	−0.300	0.300	0.000	1.000
Goyette et al, 1978a[8]	Parent	−0.188	0.157	−0.495	0.119	−1.199	.231
Goyette et al, 1978b[8]	Parent	0.383	0.288	−0.182	0.948	1.329	.184
Harley et al, 1978[10]	Parent	0.219	0.306	−0.380	0.818	0.718	.473
Levy and Hobbes, 1978[11]	Parent	0.595	0.348	−0.086	1.277	1.712	.087
Mattes et al, 1981[12]	Parent	−0.165	0.281	−0.715	0.385	−0.588	.557
McCann et al, 2007a[12] [a]	Parent	0.198	0.098	0.005	0.391	2.015	.044
McCann et al, 2007b[13] [a]	Parent	0.118	0.096	−0.070	0.306	1.230	.219
Pollock and Warner, 1990[3]	Parent	0.343	0.092	0.163	0.523	3.736	.000
Rapp, 1978[1]	Parent	0.478	0.209	0.068	0.888	2.286	.022
Rowe and Rowe,1994[15]	Parent	0.211	0.136	−0.055	0.477	1.555	.120
Rowe, 1988[14]	Parent	0.584	0.347	−0.095	1.263	1.685	.092
Sarantinos et al, 1992[16]	Parent	0.181	0.262	−0.333	0.695	0.691	.490
Spring et al, 1981[17]	Parent	0.431	0.957	−1.444	2.306	0.450	.652
Weiss et al, 1980[24]	Parent	0.095	0.206	−0.309	0.499	0.461	.645
Williams et al, 1978[21]	Parent	0.522	0.204	0.123	0.920	2.563	.010
Wilson and Scott, 1989[22]	Parent	0.000	0.358	−0.701	0.701	0.000	1.000
Adams, 1981[23]	Tchr/Obs[b]	0.191	0.176	−0.155	0.536	1.082	.279
Goyette et al, 1978a[8]	Tchr/Obs[b]	0.000	0.233	−0.457	0.457	0.000	1.000
Harley et al, 1978[10]	Tchr/Obs[b]	0.068	0.270	−0.461	0.596	0.251	.802
Mattes et al, 1981[12]	Tchr/Obs[b]	0.175	0.317	−0.447	0.797	0.551	.582
McCann et al, 2007a[13]	Tchr/Obs[b]	0.043	0.098	−0.149	0.234	0.439	.660
McCann et al, 2007b[13]	Tchr/Obs[b]	0.039	0.096	−0.149	0.227	0.407	.684
Spring et al, 1981-T[17]	Tchr/Obs[b]	0.378	0.949	−1.482	2.238	0.398	.690
Williams et al, 1978-T[21]	Tchr/Obs[b]	0.512	0.203	0.114	0.910	2.524	.012
Adams, 1981[23]	Tests	0.005	0.226	−0.437	0.448	0.024	.981
Conners et al, 1980[6]	Tests	0.801	0.355	0.105	1.498	2.255	.024
Goyette et al, 1978a[8]	Tests	0.318	0.244	−0.160	0.796	1.304	.192
Mattes et al, 1981[12]	Tests	0.099	0.359	−0.605	0.803	0.276	.783
McCann et al, 2007b[13]	Tests	0.177	0.108	−0.036	0.389	1.630	.103
Swanson et al, 1981[18]	Tests	0.590	0.234	0.131	1.049	2.522	.012

Note:
[a] *McCann et al, 2007a is their study of 3 year olds; 2007b is their study of 8-9 year olds.*
[b] *Teacher ratings (Tchr) or observer coding (Obs), or both, were available. Here, they are pooled within study.*

TABLE S4 Task-based Studies, by Individual Study and by Type of Task

1st Author, Year	Task	n	g	SE	Lower	Upper	z	p
Attention[a]								
Bateman, 1994[5]	ATH composite	277	0.07	0.06	−0.05	0.19	1.2	.2300
McCann, 2007[13]	CPT	86	0.18	0.11	−0.04	0.39	1.63	.1000
Mattes, 1981[12]	Distraction task	5	0.1	0.36	−0.6	0.8	0.28	.7800
Adams, 1981[23]	Memory tasks	18	0.01	0.23	−0.44	0.45	0.02	.9800
Goyette, 1978[8]	ZITA/ADT	16	0.32	0.24	−0.16	0.8	1.3	.1900
Conners, 1980[6]	PALT	9	0.8	0.36	0.1	1.5	2.25	.0200
Swanson, 1981[18]	PALT	20	0.59	0.23	0.13	1.05	2.52	.0100
Motor								
Adams, 1981[23]	Motor battery	18						
Adams, 1981[23]	Balance (hop)	18	0.54	0.24	0.06	1.01	2.22	.0300
Adams, 1981[23]	Coordination (ball)	18	−0.3	0.16	−0.62	0.02	−1.86	.0600
Adams,1981[23]	Fine motor (draw)	18	−0.03	0.13	−0.28	0.23	−0.2	.8400
Rapp, 1978[1]	Ayres motor	24	0	0.2	−0.39	0.39	0	1.0000
Language								
Adams, 1981[23]	Picture Vocabul	18	0.40	0.24	−0.06	0.87	1.72	.0852
Adams, 1981[23]	Handwriting		−0.14	0.23	−0.58	0.30	−0.62	.5358
Physiology[b]								
Conners, 1980[6]	Actigraph foot	9	0.90	0.37	0.18	1.63	2.45	.0143
Conners, 1980[6]	Actigraph hand	9	0.06	0.30	−0.53	0.65	0.20	.8445
Physiology								
Restriction diet								
Uhlig, 1997[20]	EEG Central	12	0.37	0.28	−0.18	0.91	1.31	.1908
Uhlig, 1997[20]	EEG Frontal	12	0.71	0.31	0.11	1.31	2.31	.0207
Uhlig, 1997[20]	EEG Posterior	12	−0.21	0.14	−0.49	0.07	−1.45	.1467
Uhlig, 1997[20]	EEG Temporal	12	0.43	0.30	−0.15	1.01	1.45	.1478
Summary Food colors								
Motor overall		42	0.02	0.15	−0.27	0.32	0.15	.8800
PALT overall		29	0.65	0.2	0.27	1.04	3.35	.0008
Attention pooled		154	0.27	0.10	0.07	0.47	2.67	.0074
Attention not memory		136	0.32	0.11	0.11	0.54	2.90	.0037
Language overall		18	0.13	0.23	−0.32	0.58	0.57	.5668

Study	Task(s)	g Removed	SE	Lower	Upper	z	p
One-Study-Removed Analysis for Attention Tasks							
Attention Studies (All)							
Adams, 1981[23]	Combined	0.323	0.111	0.105	0.541	2.902	.0037
Conners et al, 1980[6]	PALT	0.217	0.082	0.056	0.378	2.637	.0084
Goyette et al, 1978a[8]	ZITA/ADT	0.279	0.127	0.030	0.528	2.196	.0281
Mattes and Gittleman, 1981[12]	distraction task	0.298	0.118	0.068	0.529	2.535	.0112
McCann et al, 2007[13]	Combined	0.340	0.142	0.061	0.618	2.389	.0169
Swanson and Kinsbourne, 1981[18]	PALT	0.201	0.085	0.034	0.368	2.357	.0184
Overall		**0.272**	**0.102**	**0.073**	**0.471**	**2.677**	**.0074**

TABLE S4 Continued

Study	Task(s)	g Removed	SE	Lower	Upper	z	*p*
Attention Studies (Colors Only)							
Adams, 1981[23]	Combined	0.458	0.140	0.183	0.733	3.262	.0011
Conners, et al., 1980[6]	PALT	0.271	0.138	0.001	0.542	1.965	.0495
Goyette et al., 1978a[8]	ZITA/ADT	0.354	0.191	−0.022	0.729	1.848	.0647
Mattes and Gittleman, 1981[12]	distraction task	0.382	0.166	0.056	0.707	2.296	.0217
Swanson and Kinsbourne, 1981[18]	PALT	0.255	0.160	−0.058	0.569	1.598	.1101
Overall		**0.340**	**0.142**	**0.061**	**0.618**	**2.389**	**.0169**

Note: ADT = Auditory Discrimination Test; ATH = aggregated test hyperactivity; CPT = Continuous Performance Test; EEG = electroencephalography; PALT = Paired Associated Learning Test; SE = standard error; ZITA = Zero Input Tracking Analyzer.

[a]*One-study-removed analysis for attention tasks.*

[b]*Actigraphy effects estimated from cell means in authors' table may be over- or underestimated.*

TABLE S5 Studies of Children Who Were Preselected to Be Diet Responsive Versus Those Not Preselected

	Studies	N	g	CI	*p*	Q	*p*	τ	I^2
Parent									
All studies									
Not preselected	5	593	.199	.09–.31	.001	6.0	.20	.07	33%
Selected	15	221	.192	.02–.36	.023	36.4	.001	.24	61%
Difference between groups: p = .95 (NS)									
High-quality studies									
Not preselected	3	515	.15	.07–.24	.001	3.6	.16	.08	45%
Selected	8	123	.11	.01–.22	.041	23.8	.001	.26	71%
Difference between groups: p =.73 (NS)									
Teacher									
All studies									
Not preselected	4	267	.21	−.04–.46	.09	7.7	.052	.194	61%
Selected	6	78	.06	−.12–.24	.52	0.9	.96	.00	.00%
Difference between groups: p =.33 (NS)									
High-quality studies									
Not preselected	3	257	.27	−.05–.60	.09	7.4	.02	.23	73%
Selected	5	50	.12	−.10–35	.29	0.6	.97	.00	.00%
Difference between groups: p = .45 (NS)									
Tests of Attention									
Not preselected	2	106	.33	−.06–.72	.09	2.6	.11	.23	61%
Preselected	5	67	.22	.05–.45	.01	3.9	.41	.00	.00%
Difference between groups: p = .62 (NS)									

Note: Two studies selected children to be hyperactive, but did not further select for diet sensitivity before giving the food color challenge. Williams et al (1978)[21] gave a challenge to 26 children with high hyperactivity scores and obtained parent and observer ratings. Parent ratings yielded g = 0.56; teacher ratings yielded g = 0.51. Swanson and Kinsbourn (1981) [18] conducted their challenge and response on the Partially Accelerated Life Test with children who were hyperactive but not previously given a dietary test, and saw a difference in response between hyperactive and nonhyperactive youngsters, although the pattern was difficult to interpret. CI = confidence interval; NS = not significant.

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