

Supplementary material belonging to:

Article: The Effects of Increased Dopamine-Levels on Attentional Control During Reading and Reading Comprehension

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ELECTRONIC SUPPLEMENTARY MATERIAL 3**Table S1**

Descriptive Statistics for Outcome Measures in the Levodopa Condition and the Placebo Condition, Separated for Low and High Reading Motivation [RM] (N = 80).

Outcome measure	Subgroups	Levodopa condition			Placebo condition		
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Average frontal TBR during reading	Low RM	39	.38	.17	40	.39	.19
	High RM	39	.39	.16	39	.39	.15
	Total	78	.38	.16	79	.39	.17
<i>SD</i> in frontal TBR during reading	Low RM	39	.11	.07	40	.09	.06
	High RM	39	.08	.04	39	.08	.04
	Total	78	.09	.06	79	.09	.05
Self-reported attention during reading	Low RM	39	2.64	1.66	40	2.70	2.32
	High RM	39	3.26	2.52	38	2.95	2.54
	Total	78	2.95	2.14	78	2.82	2.42
Summary task (% correct mentioned main events)	Low RM	40	24.62	14.14	40	23.34	13.09
	High RM	40	24.77	13.24	40	27.60	13.01
	Total	80	24.70	13.61	80	25.47	13.14

Text-level comprehension questions (% correct)	Low RM	40	29.35	16.22	40	36.81	18.91
	High RM	40	34.29	18.82	40	36.63	16.45
	Total	80	31.82	17.63	80	36.72	17.61
Spelling questions (% correct)	Low RM	40	9.50	5.68	40	10.33	8.02
	High RM	40	7.17	5.68	40	10.67	7.85
	Total	80	8.33	5.76	80	10.50	7.89
MC word meaning questions (% correct)	Low RM	40	41.75	9.70	40	43.67	12.31
	High RM	40	46.25	8.68	40	50.08	14.13
	Total	80	44.00	9.42	80	46.88	13.56
Open word meaning questions (% correct)	Low RM	40	4.25	5.55	40	5.00	6.22
	High RM	40	5.33	5.79	40	7.83	7.90
	Total	80	4.79	5.66	80	6.42	7.21

Table S2

Repeated Measures ANOVA Statistics for the Effect of DA on Attentional Control Including Main and Interaction Effects of Low vs. High Reading Motivation (n = 76).

Effects	ANOVA statistics		
	<i>F</i> (1,74)	<i>p</i>	η_p^2
<i>Main effects</i>			
DA condition (W)	1.47	.23	.019
Type of attentional control measure (W)	41.52	<.001	.359
Reading motivation (B)	.00	1.00	.000
<i>Two-way interactions</i>			
DA condition * Type of attentional control measure	1.25	.29	.017
DA condition * Reading motivation	.30	.59	.004
Type of attentional control measure * Reading motivation	2.46	.09	.032
<i>Three-way interaction</i>			
DA condition * Type of attentional control measure * Reading motivation	.18	.83	.002

Note. (W) = within-subjects factor; (B) = between-subjects factor

Table S3

Repeated Measures ANOVA Statistics for the Effect of DA on Reading Comprehension Including Main and Interaction Effects of Low vs. High Reading Motivation (n = 80).

Effects	ANOVA statistics			
	<i>F</i>	<i>df</i>	<i>p</i>	η_p^2
<i>Main effects</i>				
DA condition (W)	11.48	1,78	.001	.128
Type of reading comprehension measure (W)	97.68	2.46,192.08	< .001	.556
Reading motivation (B)	2.65	1,78	.11	.033
<i>Two-way interactions</i>				
DA condition * Type of reading comprehension measure	305.65	2.41,187.97	< .001	.797
DA condition * Reading motivation	.53	1,78	.47	.007
Type of reading comprehension measure * Reading motivation	1.12	2.46,192.08	.34	.014
<i>Three-way interaction</i>				
DA condition * Type of reading comprehension measure * Reading motivation	1.82	2.41,187.97	.16	.023

Note. (W) = within-subjects factor; (B) = between-subjects factor; Mauchly's test indicated that the assumption of sphericity had been violated for the main effect of type of reading comprehension measure ($\chi^2(9) = 103.00$, $p < .001$) and the interaction effect of condition and type of reading comprehension measure ($\chi^2(9) = 91.39$, $p < .001$). Therefore, degrees of freedom for these effects were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .62$ for the main effect of condition and $\epsilon = .60$ for the interaction effect of condition and type of outcome measure).

Table S4

Descriptive Statistics for Outcome Measures in the Levodopa Condition and the Placebo Condition, Separated for Low vs. High Executive Functions [EF] (N = 80).

Outcome measure	Subgroups	Levodopa condition			Placebo condition		
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Average frontal TBR during reading	Low EF	39	.37	.17	40	.39	.16
	High EF	39	.39	.16	39	.39	.19
	Total	78	.38	.16	79	.39	.17
<i>SD</i> in frontal TBR during reading	Low EF	39	.10	.07	40	.08	.04
	High EF	39	.09	.05	39	.09	.06
	Total	78	.09	.06	79	.09	.05
Self-reported attention during reading	Low EF	39	3.18	2.61	39	3.31	2.97
	High EF	39	2.72	1.54	39	2.33	1.60
	Total	78	2.95	2.14	78	2.82	2.42
Summary task (% correct mentioned main events)	Low EF	40	27.75	13.63	40	25.12	14.61
	High EF	40	21.64	13.05	40	25.82	11.67
	Total	80	24.70	13.61	80	25.47	13.14
Text-level comprehension questions (% correct)	Low EF	40	35.13	18.10	40	38.36	16.77
	High EF	40	28.50	16.72	40	35.07	18.48
	Total	80	31.82	17.63	80	36.72	17.61

Spelling questions (% correct)	Low EF	40	8.92	6.06	40	11.92	7.04
	High EF	40	7.75	5.46	40	9.08	8.51
	Total	80	8.33	5.76	80	10.50	7.89
MC word meaning questions (% correct)	Low EF	40	45.75	10.59	40	49.33	14.00
	High EF	40	42.25	7.82	40	44.42	12.80
	Total	80	44.00	9.42	80	46.88	13.56
Open word meaning questions (% correct)	Low EF	40	5.33	6.17	40	6.08	5.89
	High EF	40	4.25	5.12	40	6.75	8.39
	Total	80	4.79	5.66	80	6.42	7.21

Table S5

Repeated Measures ANOVA Statistics for the Effect of DA on Attentional Control Including Main and Interaction Effects of Low vs. High Executive Functioning (n = 76).

Effects	ANOVA statistics		
	<i>F</i> (1,74)	<i>p</i>	η_p^2
<i>Main effects</i>			
DA condition (W)	1.47	.23	.020
Type of attentional control measure (W)	40.78	<.001	.355
Executive functioning (B)	.20	.66	.003
<i>Two-way interactions</i>			
DA condition * Type of attentional control measure	1.20	.30	.016
DA condition * Executive functioning	.02	.89	.000
Type of attentional control measure * Executive functioning	1.67	.19	.022
<i>Three-way interaction</i>			
DA condition * Type of attentional control measure * Executive functioning	1.46	.24	.019

Note. (W) = within-subjects factor; (B) = between-subjects factor

Table S6

Repeated Measures ANOVA Statistics for the Effect of DA on Reading Comprehension Including Main and Interaction Effects of Low vs. High Executive Functioning (n = 80).

Effects	ANOVA statistics			
	<i>F</i>	<i>df</i>	<i>p</i>	η_p^2
<i>Main effects</i>				
DA condition (W)	11.62	1,78	.001	.130
Type of reading comprehension measure (W)	96.97	2.52,196.76	< .001	.554
Executive functioning (B)	4.44	1,78	.04	.054
<i>Two-way interactions</i>				
DA condition * Type of reading comprehension measure	305.74	2.36,183.87	< .001	.797
DA condition * Executive functioning	1.48	1,78	.23	.019
Type of reading comprehension measure * Executive functioning	.54	2.52,196.76	.62	.007
<i>Three-way interaction</i>				
DA condition * Type of reading comprehension measure * Executive functioning	1.84	2.36,183.87	.15	.023

Note. (W) = within-subjects factor; (B) = between-subjects factor; Mauchly's test indicated that the assumption of sphericity had been violated for the main effect of type of reading comprehension measure ($\chi^2(9) = 91.49$, $p < .001$) and the interaction effect of condition and type of reading comprehension measure ($\chi^2(9) = 94.50$, $p < .001$). Therefore, degrees of freedom for these effects were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .63$ for the main effect of condition and $\epsilon = .59$ for the interaction effect of condition and type of outcome measure).

Table S7

Descriptive Statistics for Outcome Measures in the Levodopa Condition and the Placebo Condition, Separated per Slow and Fast Baseline Reading Speed (n = 80).

Outcome measure	Subgroups	Levodopa condition			Placebo condition		
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Average frontal TBR during reading	Slow	39	.36	.15	40	.38	.19
	Fast	39	.40	.18	39	.40	.15
	Total	78	.38	.16	79	.39	.17
<i>SD</i> in frontal TBR during reading	Slow	39	.09	.05	40	.10	.06
	Fast	39	.10	.07	39	.07	.03
	Total	78	.09	.06	79	.09	.05
Self-reported attention during reading	Slow	40	2.65	1.78	39	2.69	1.58
	Fast	38	3.26	2.46	39	2.95	3.05
	Total	78	2.95	2.14	78	2.82	2.42
Summary task (% correct mentioned main events)	Slow	40	28.42	14.21	40	27.42	14.21
	Fast	40	20.97	12.03	40	23.52	11.83
	Total	80	24.70	13.61	80	25.47	13.14
Text-level comprehension questions (% correct)	Slow	40	30.70	16.06	40	38.14	17.06
	Fast	40	32.93	19.21	40	35.30	18.26
	Total	80	31.82	17.63	80	36.72	17.61

Spelling questions (% correct)	Slow	40	9.17	6.30	40	11.17	8.21
	Fast	40	7.50	5.10	40	9.83	7.58
	Total	80	8.33	5.76	80	10.50	7.89
MC word meaning questions (% correct)	Slow	40	43.67	10.99	40	46.83	14.12
	Fast	40	44.33	7.66	40	46.92	13.15
	Total	80	44.00	9.42	80	46.88	13.56
Open word meaning questions (% correct)	Slow	40	5.08	6.13	40	6.42	7.14
	Fast	40	4.50	5.20	40	6.41	7.37
	Total	80	4.79	5.66	80	6.42	7.21

Table S8

Repeated Measures ANOVA Statistics for the Effect of DA on Attentional Control Including Main and Interaction Effects of Slow vs. Fast Baseline Reading Speed (n = 76).

Effects	ANOVA statistics		
	<i>F</i> (1,74)	<i>p</i>	η_p^2
<i>Main effects</i>			
DA condition (W)	1.58	.21	.021
Type of attentional control measure (W)	41.54	<.001	.360
Reading speed (B)	.003	.96	.000
<i>Two-way interactions</i>			
DA condition * Type of attentional control measure	1.28	.28	.017
DA condition * Reading speed	6.00	.02	.075
Type of attentional control measure * Reading speed	2.50	.09	.033
<i>Three-way interaction</i>			
DA condition * Type of attentional control measure * Reading speed	1.75	.18	.023

Note. (W) = within-subjects factor; (B) = between-subjects factor

Table S9

Repeated Measures ANOVA Statistics for the Effect of DA on Reading Comprehension Including Main and Interaction Effects of Slow vs. Fast Baseline Reading Speed (n = 80).

Effects	ANOVA statistics			
	<i>F</i>	<i>df</i>	<i>p</i>	η_p^2
<i>Main effects</i>				
DA condition (W)	11.41	1,78	.001	.128
Type of reading comprehension measure (W)	98.53	2.48,193.79	< .001	.558
Reading speed (B)	1.18	1,78	.28	.015
<i>Two-way interactions</i>				
DA condition * Type of reading comprehension measure	302.24	2.44,190.13	< .001	.795
DA condition * Reading speed	.03	1,78	.87	.000
Type of reading comprehension measure * Reading speed	1.81	2.48,193.79	.16	.023
<i>Three-way interaction</i>				
Condition * Type of reading comprehension measure * Reading speed	.93	2.44,190.13	.45	.012

Note. (W) = within-subjects factor; (B) = between-subjects factor; Mauchly's test indicated that the assumption of sphericity had been violated for the main effect of type of reading comprehension measure ($\chi^2(9) = 92.30$, $p < .001$) and the interaction effect of condition and type of reading comprehension measure ($\chi^2(9) = 89.61$, $p < .001$). Therefore, degrees of freedom for these effects were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .62$ for the main effect of condition and $\epsilon = .61$ for the interaction effect of condition and type of outcome measure).

Table S10

Pearson's correlations among drug effects for attentional control during reading and reading comprehension.

Drug effects ¹ on:	1.	2.	3.	4.	5.	6.	7.	8.
1. Average frontal TBR during reading	1							
2. <i>SD</i> in frontal TBR during reading	.00	1						
3. Self-reported attention during reading	-.08	-.08	1					
4. Summary task (% correct mentioned main events)	.09	.04	.12	1				
5. Text-level comprehension questions (% correct)	.13	.05	-.27*	-.40**	1			
6. Spelling questions (% correct)	.15	.14	-.15	-.26*	-.28*	1		
7. MC word meaning questions (% correct)	-.05	.03	-.15	.09	.01	.19	1	
8. Open word meaning questions (% correct)	.04	.15	-.19	-.22	.39**	.09	.27*	1

Note. ¹ Difference scores, calculated as follows: score in levodopa condition minus score in placebo condition, *

$p < .05$, ** $p < .01$