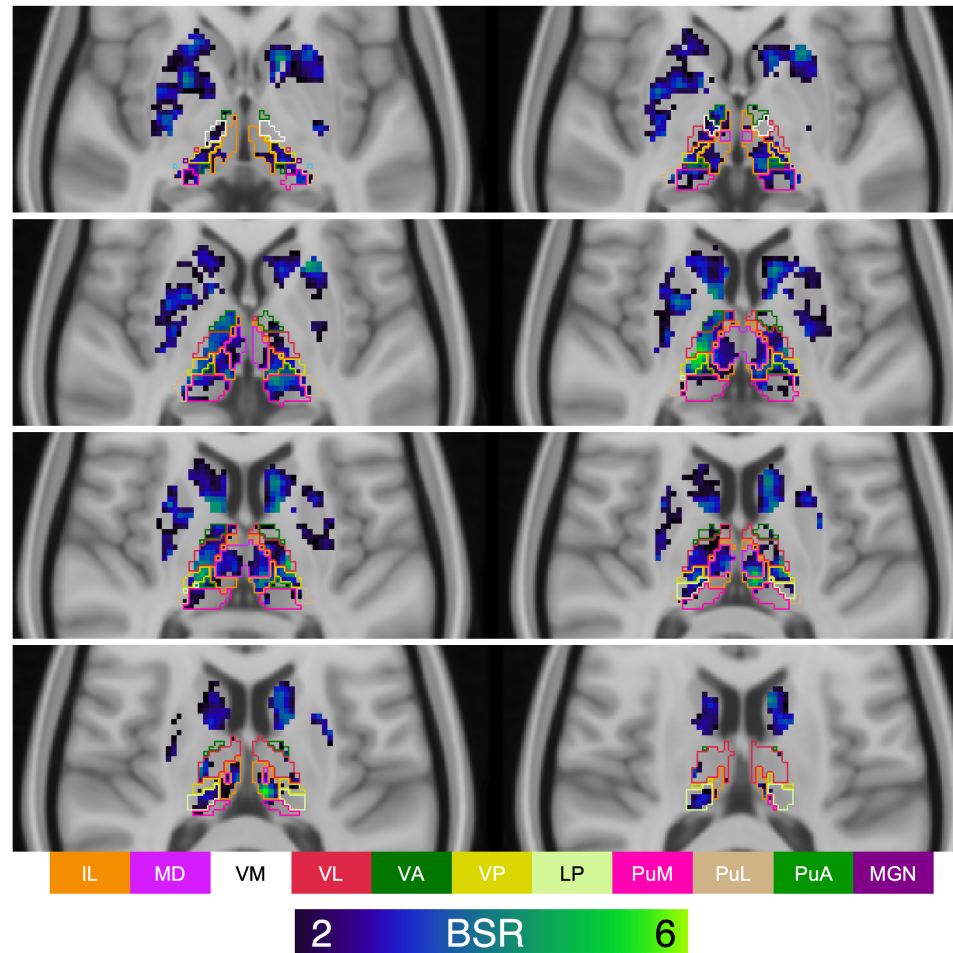*Figure S1: Axial slice view of the PLS model result depicted in Figure 2 (main paper) with Morel thalamic atlas overlaid.* Blue-green voxels are those representing correlation between working memory load-based SD_{BOLD} modulation and D_2 binding. IL = intralaminar. MD = mediodorsal. VM = ventromedial. VL = ventrolateral. VA = ventroanterior. VP = ventroposterior. LP = lateralposterior. PuM = pulvinar, medial. PuL = pulvinar, lateral. MGN = medial geniculate nucleus. BSR = bootstrap ratio.
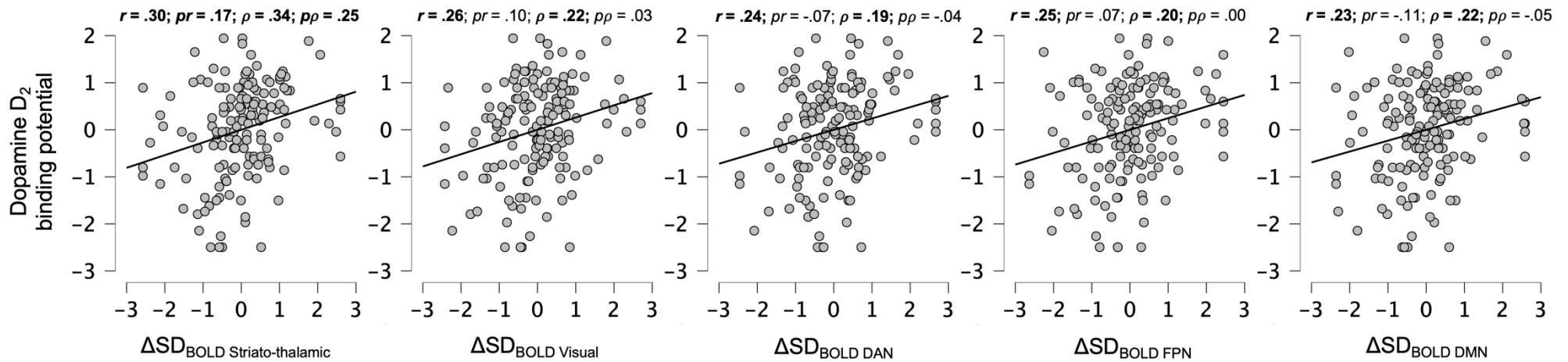
Figure S2: Correlations between SD$_{BOLD}$ modulation and dopamine D$_2$ binding potential in each a priori network. Although a positive association between SD$_{BOLD}$ modulation and dopamine was present in every network, partial correlation analyses revealed that this association was uniquely robust in the striato-thalamic system. *pr* = partial Pearson's correlation. *pρ* = partial Spearman's Rho. Statistically significant effects are noted in bold (all statistics are summarized in Table S1).
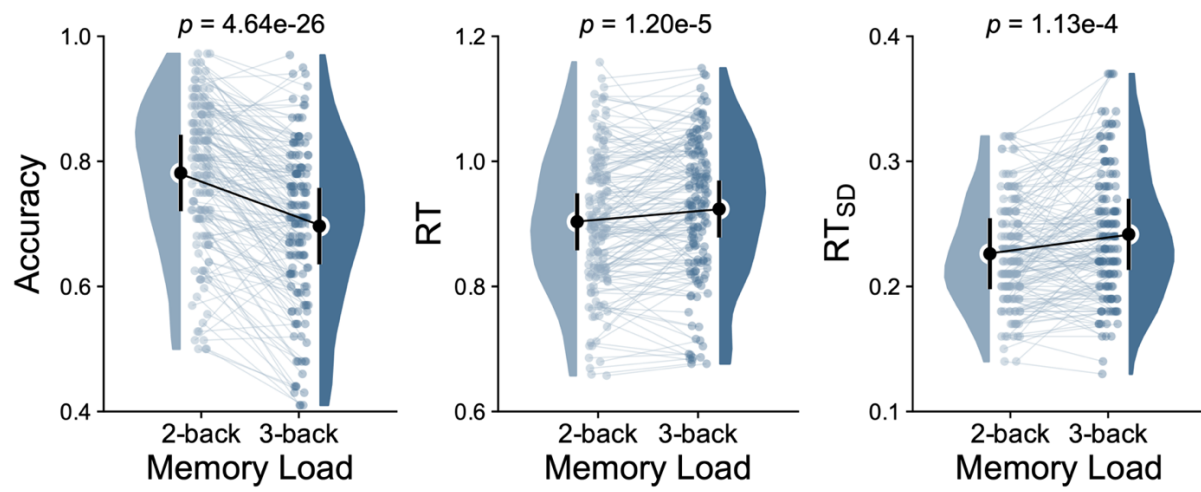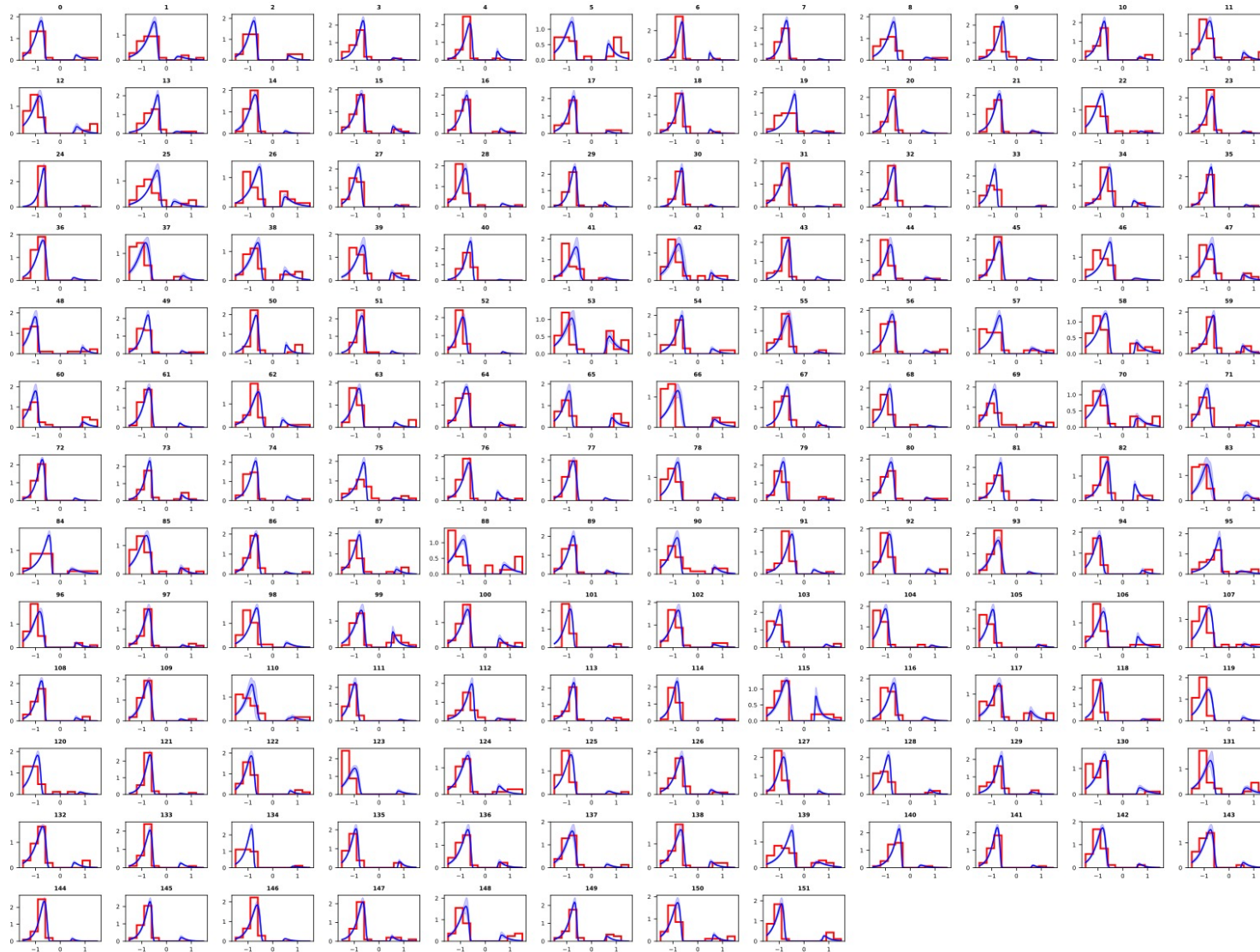
Figure S3: Accuracy and reaction time (RT) estimates for 2- and 3-back.

2-back, target absent

2-back, target present
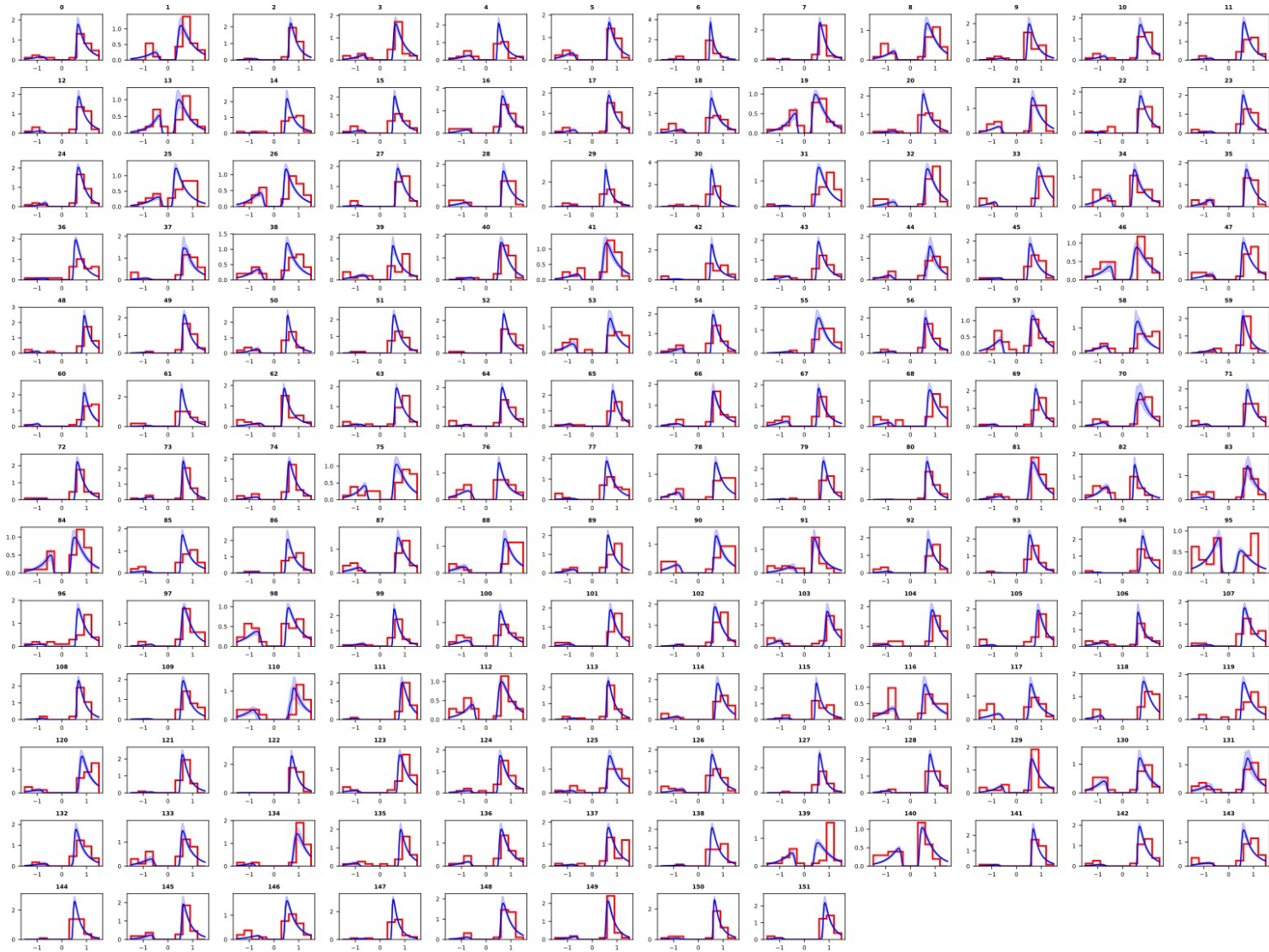
3-back, target absent

3-back, target present
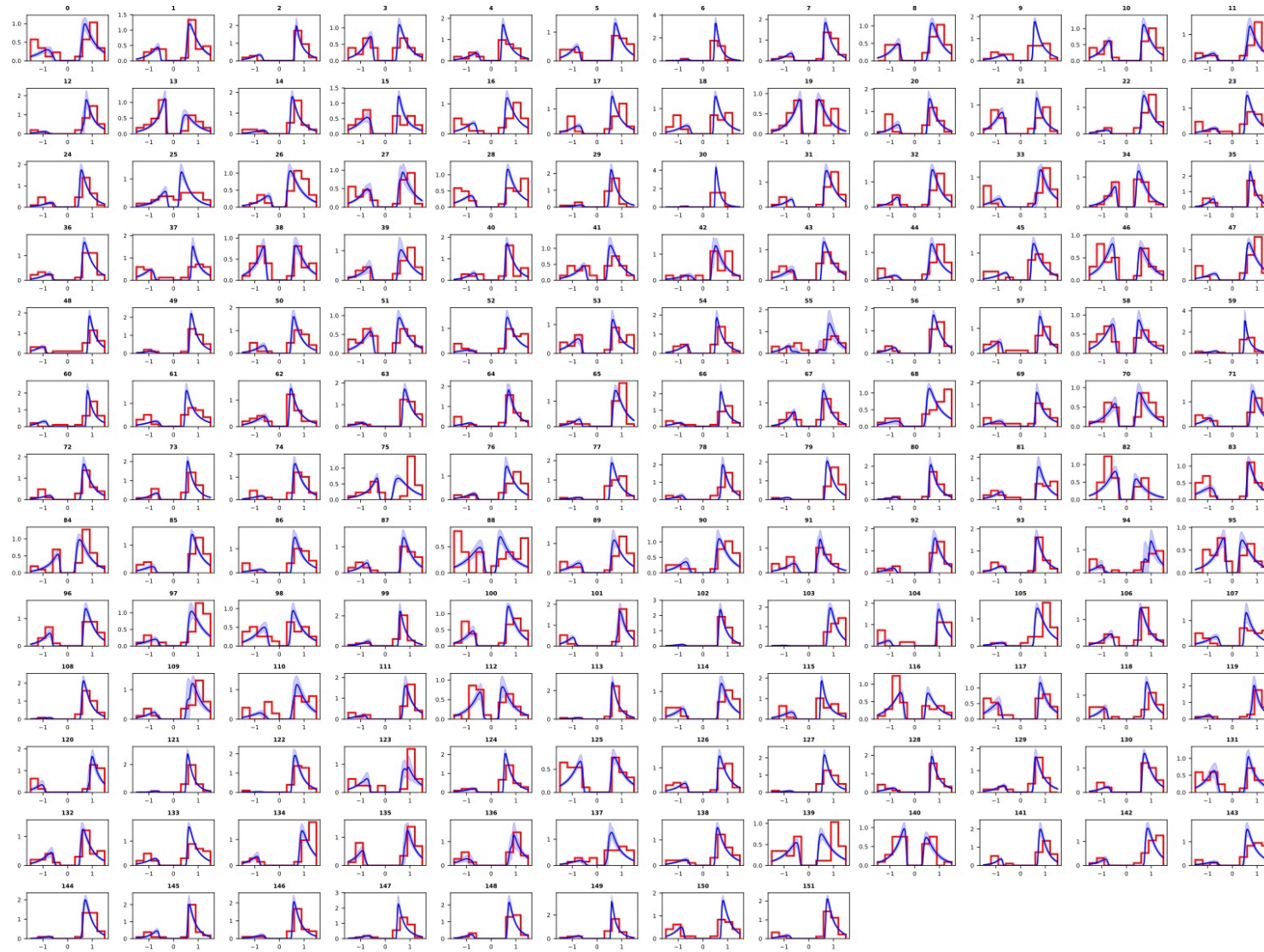
Figure S4: Reaction time (RT) histograms (red lines) for each subject (N = 152 subjects) with modeling fit (drift rate, boundary separation, non-decision time, starting point bias, drift bias) overlaid (blue lines, error bars are 1 SD) for the 2-back and 3-back conditions. HDDM "stimulus coding" was used, which fits the DDM separately for target absent (no match) trials and target present (match) trials to enable estimation of decision bias parameters. Fits are shown for both trial types for both conditions. "No" and "Yes" RTs and model fits are negatively and positively signed, respectively. Horizontal axis, RT in seconds; vertical axis, probability density.

Figure S4: Main effects of DDM parameters on SD$_{BOLD}$ modulation in the fronto-parietal network (FPN).

Table S1: Descriptive statistics and repeated-measures ANOVA (RMANOVA) results for all behavioral parameters. SDT = signal detection-theoretic. a = boundary; v = drift rate; t = non-decision time; z = starting point bias; dc = drift criterion (drift bias).

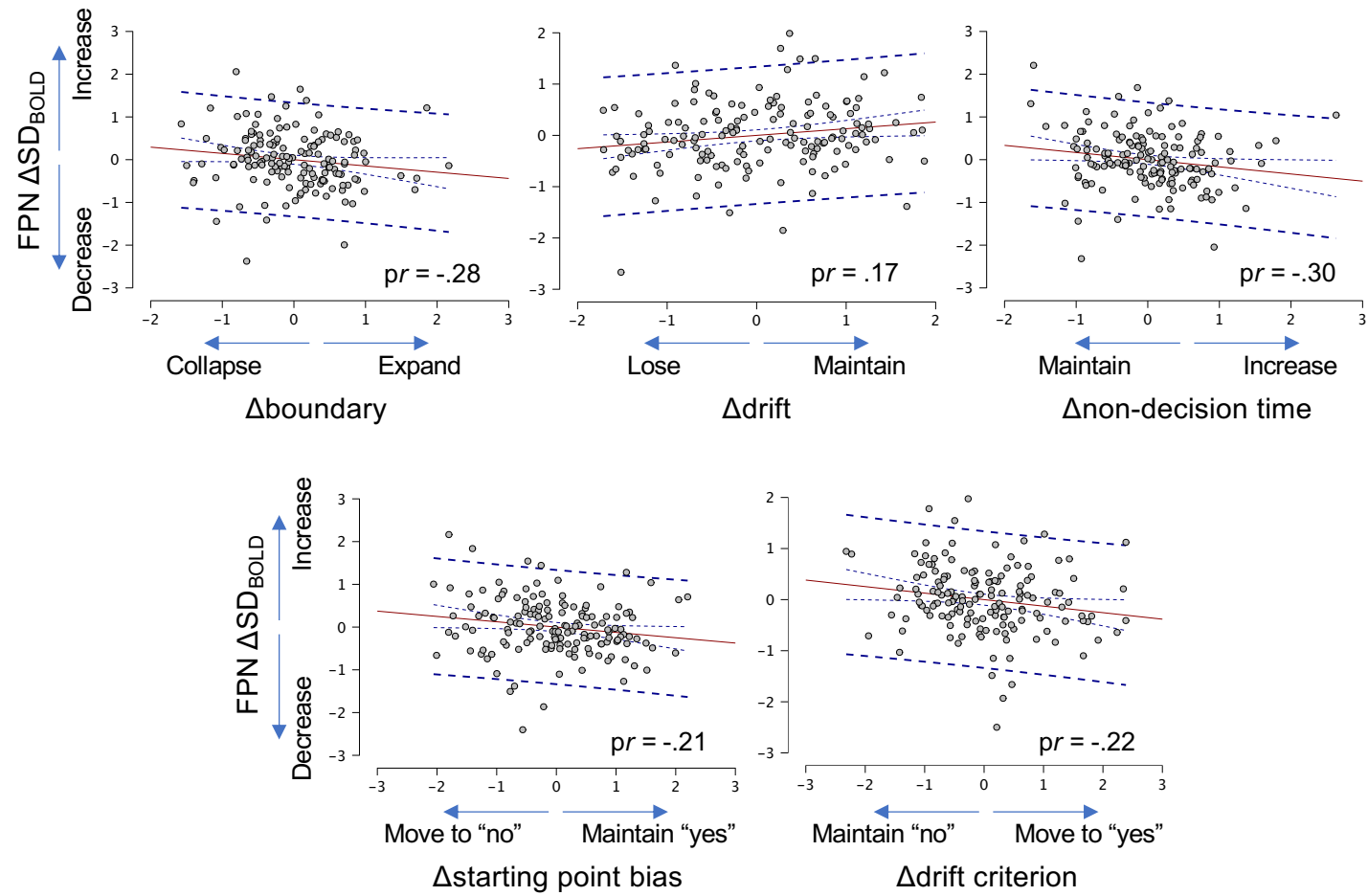|	Variable	Load	Mean	Median	SD	Min	Max	RMANOVA models		
								F	*p*	Partial η^2
Model-free estimates	Accuracy	2-back	0.87	0.88	0.08	0.61	0.99	-	-	-
		3-back	0.79	0.80	0.10	0.50	1.00	**168.07**	**4.64E-26**	**0.54**
	RT_{mean}	2-back	0.89	0.88	0.12	0.62	1.20	-	-	-
		3-back	0.92	0.93	0.13	0.61	1.17	**20.60**	**1.20E-05**	**0.12**
	RT_{SD}	2-back	0.24	0.24	0.05	0.14	0.38	-	-	-
		3-back	0.25	0.24	0.06	0.13	0.43	**15.75**	**1.13E-04**	**0.10**
DDM parameters	a	2-back	1.67	1.66	0.13	1.4	1.98	-	-	-
		3-back	1.55	1.54	0.12	1.27	1.85	**127.57**	**7.92E-22**	**0.46**
	v	2-back	1.52	1.54	0.37	0.61	2.33	-	-	-
		3-back	1.1	1.11	0.35	0.24	1.9	**335.77**	**3.24E-40**	**0.69**
	t	2-back	0.49	0.47	0.11	0.2	0.75	-	-	-
		3-back	0.49	0.49	0.14	0.18	0.83	1.23	0.27	0.01
	z	2-back	0.58	0.59	0.05	0.48	0.69	-	-	-
		3-back	0.56	0.56	0.05	0.45	0.65	**61.11**	**8.58E-13**	**0.29**
	dc	2-back	-0.43	-0.43	0.13	-0.74	-0.12	-	-	-
		3-back	-0.38	-0.37	0.13	-0.66	-0.12	**27.97**	**4.25E-07**	**0.16**

Table S2: Bivariate correlation table between offline measures (education, the Digit symbol subtest from the Wechsler Adult Intelligence Scale (WAIS), Working Memory (WM) and Speed) and each DDM parameter.

	Education	Digit Symbol	WM	Speed
2-back a	0.125	0.069	0.145	-0.083
3-back a	0.031	0.11	0.076	-0.095
2-back v	0.04	0.243**	0.371***	0.227**
3-back v	-0.096	0.198*	0.305***	0.21**
2-back t	-0.121	-0.195*	-0.168*	-0.096
3-back t	-0.122	-0.154	-0.096	-0.079
2-back z	0.019	0.131	0.229**	0.179*
3-back z	-0.133	0.025	0.051	0.102
2-back dc	-0.221**	-0.317***	-0.403***	-0.181*
3-back dc	-0.29***	-0.18*	-0.288***	-0.164*

Table S3: Network-specific models of ΔSD_{BOLD}. All deltas represent n-back load 3 minus load 2. All ΔPCAdim estimates are also network-specific, matching the network of the dependent variable in each model.

Dependent variable: ΔSD_{BOLD}	Independent variables	N=152						N=145 (w/ Cook's outliers removed)					
		t	*p*	Zero-order	Partial	Part	VIF	*t*	*p*	Zero-order	Partial	Part	VIF
Striato-thalamic	Dopamine	3.35	**1.04E-03**	0.30	0.27	0.18	1.09	3.91	**1.49E-04**	0.34	0.32	0.20	1.11
	Δa	0.14	0.89	-0.03	0.01	0.01	2.33	-0.35	0.73	-0.04	-0.03	-0.02	2.33
	Δv	-0.08	0.94	0.01	-0.01	0.00	1.26	0.07	0.94	0.00	0.01	0.00	1.27
	Δt	0.25	0.80	-0.02	0.02	0.01	2.21	-0.37	0.71	-0.04	-0.03	-0.02	2.21
	Δz	-1.57	0.12	-0.15	-0.13	-0.08	1.21	-1.01	0.32	-0.11	-0.09	-0.05	1.17
	Δdc	-2.51	**0.01**	-0.03	-0.21	-0.13	1.17	-3.33	**1.11E-03**	-0.12	-0.28	-0.17	1.14
	ΔPCAdim	-12.08	**1.86E-23**	-0.71	-0.71	-0.64	1.10	-12.64	**1.54E-24**	-0.72	-0.74	-0.64	1.09
	Dopamine * Δdc	-2.56	**0.01**	-0.17	-0.21	-0.13	1.05	-2.50	**0.01**	-0.15	-0.21	-0.13	1.05
	ΔPCAdim * Δa	2.49	**0.01**	0.08	0.21	0.13	1.97	2.86	**4.92E-03**	0.12	0.24	0.15	1.92
	ΔPCAdim * Δv	-2.14	**0.03**	-0.10	-0.18	-0.11	1.27	-2.21	**0.03**	-0.06	-0.19	-0.11	1.28
	ΔPCAdim * Δt	1.85	0.07	0.08	0.15	0.10	2.10	2.46	**0.02**	0.08	0.21	0.13	1.98
Yeo1_Visual	Dopamine	3.20	**1.66E-03**	0.26	0.26	0.18	1.03	3.36	**1.02E-03**	0.28	0.28	0.19	1.03
	Δa	-1.35	0.18	-0.08	-0.11	-0.08	2.19	-1.66	0.10	-0.02	-0.14	-0.09	2.16
	Δv	1.08	0.28	0.03	0.09	0.06	1.21	1.23	0.22	0.05	0.10	0.07	1.18
	Δt	-0.58	0.56	0.06	-0.05	-0.03	2.03	-1.21	0.23	0.00	-0.10	-0.07	2.01
	Δz	-0.87	0.39	-0.12	-0.07	-0.05	1.21	-0.99	0.32	-0.12	-0.08	-0.05	1.19
	Δdc	-1.49	0.14	-0.07	-0.12	-0.09	1.14	-1.84	0.07	-0.08	-0.16	-0.10	1.15
	ΔPCAdim	-11.39	**7.74E-22**	-0.69	-0.69	-0.65	1.04	-12.20	**1.23E-23**	-0.72	-0.72	-0.68	1.07
Yeo3_DAN	Dopamine	3.31	**1.18E-03**	0.24	0.27	0.17	1.04	3.63	**3.95E-04**	0.23	0.30	0.17	1.04
	Δa	-2.59	**0.01**	-0.11	-0.21	-0.13	2.20	-2.87	**4.80E-03**	-0.12	-0.24	-0.14	2.11

	Δv	1.93	0.06	0.05	0.16	0.10	1.24	2.31	**0.02**	0.04	0.19	0.11	1.20
	Δt	-1.63	0.11	0.05	-0.13	-0.08	2.05	-1.67	0.10	0.09	-0.14	-0.08	2.01
	Δz	-0.50	0.62	-0.14	-0.04	-0.03	1.22	0.20	0.84	-0.09	0.02	0.01	1.18
	Δdc	-3.10	**2.35E-03**	-0.10	-0.25	-0.16	1.14	-3.42	**8.21E-04**	-0.13	-0.28	-0.16	1.13
	ΔPCAdim	-12.98	**6.12E-26**	-0.72	-0.74	-0.67	1.10	-14.91	**2.09E-30**	-0.75	-0.79	-0.72	1.08
	Dopamine * Δa	-2.26	**0.03**	-0.23	-0.19	-0.12	1.06	-3.37	**9.73E-04**	-0.24	-0.28	-0.16	1.05
Yeo6_FPN	Dopamine	2.90	**4.27E-03**	0.25	0.24	0.16	1.04	3.26	**1.42E-03**	0.26	0.27	0.16	1.04
	Δa	-1.82	0.07	-0.06	-0.15	-0.10	2.23	-3.35	**1.04E-03**	-0.11	-0.28	-0.16	2.43
	Δv	2.17	**0.03**	0.03	0.18	0.12	1.22	2.05	**0.04**	-0.02	0.17	0.10	1.20
	Δt	-2.14	**0.03**	0.02	-0.18	-0.12	2.09	-3.71	**2.98E-04**	0.02	-0.30	-0.18	2.26
	Δz	-2.09	**0.04**	-0.17	-0.17	-0.11	1.21	-2.51	**0.01**	-0.17	-0.21	-0.12	1.19
	Δdc	-2.18	**0.03**	-0.08	-0.18	-0.12	1.17	-2.65	**0.01**	-0.08	-0.22	-0.13	1.19
	ΔPCAdim	-12.54	**8.44E-25**	-0.70	-0.72	-0.68	1.07	-14.63	**1.05E-29**	-0.74	-0.78	-0.72	1.07
	ΔPCAdim * Δv	-2.48	**0.01**	-0.07	-0.20	-0.13	1.06	-3.29	**1.28E-03**	-0.12	-0.27	-0.16	1.07
Yeo7_DMN	Dopamine	3.07	**2.53E-03**	0.23	0.25	0.16	1.03	3.07	**2.60E-03**	0.21	0.25	0.15	1.03
	Δa	-1.26	0.21	-0.01	-0.10	-0.07	2.23	-0.94	0.35	-0.01	-0.08	-0.05	2.23
	Δv	0.93	0.35	0.02	0.08	0.05	1.21	0.13	0.90	-0.02	0.01	0.01	1.20
	Δt	-1.51	0.13	0.00	-0.13	-0.08	2.07	-1.23	0.22	0.05	-0.10	-0.06	2.05
	Δz	-0.65	0.52	-0.13	-0.05	-0.03	1.22	-0.84	0.40	-0.14	-0.07	-0.04	1.24
	Δdc	-1.94	0.05	-0.07	-0.16	-0.10	1.14	-1.89	0.06	-0.05	-0.16	-0.09	1.16
	ΔPCAdim	-13.20	**1.47E-26**	-0.73	-0.74	-0.71	1.07	-14.90	**1.92E-30**	-0.78	-0.79	-0.75	1.09