

## Supplemental Material S5. Within-group analyses

### Within-group analyses for the deferred treatment/usual care control group

#### *Full results of subdomain-intercepts only model for the treatment group*

**Model syntax:** cbind(obs\_score, (poss\_score - obs\_score)) ~ Timepoint + SubDomain + Etiology + (1 + Timepoint | ID) + (1 | Item)

**Random effects: Variance (SD)**

Term		Log odds (SE)	Probability	z-value	Significance level	Intercept: ID	Intercept: Item	Slope: Time-by-ID; Corr
Intercept		0.43 (0.49)	0.61	0.88	N.S.	0.93	2.11	0.01
Timepoint		0.12 (0.02)	0.53	5.04	***	(0.97)	(1.45)	(0.10); -0.42
Etiology TBI		-0.48 (0.38)	0.38	-1.27	N.S.			
SubDomain	Auditory							
	Comprehension	2.27 (0.43)	0.91	5.31	***			
	Verbal Expression	1.80 (0.44)	0.86	4.08	***			
	Reading							
	Comprehension	1.64 (0.43)	0.84	3.80	***			
	Written Expression	1.93 (0.50)	0.87	3.89	***			
	Orientation	2.99 (0.60)	0.95	4.95	***			
	Memory	-0.48 (0.43)	0.38	-1.12	N.S.			
	Problem Solving	3.06 (0.45)	0.96	6.76	***			
	Visuospatial/ Constructional	1.11 (0.48)	0.75	2.29	*			
	Upper Limb/Facial/ Instrumental Apraxia	2.61 (0.53)	0.93	4.96	***			

*Note.* Timepoint was coded as a numeric predictor: Pre-treatment = “0”; Post-treatment 1 = “1”; Post-treatment 2 = “2”; Post-treatment 3 = “3.” Etiology (i.e., TBI, non-TBI) was dummy-coded with non-TBI as the reference level. SubDomain was dummy-coded with Attention as the reference level. The correlation value refers to the strength of association between the random slope of timepoint and the random intercept of participant. The negative value reflects participants with lower baseline accuracy have steeper slopes.

**Full results of subdomain- intercepts and slope model for treatment group**

Model syntax: glmer(cbind(obs\_score,(poss\_score-obs\_score)) ~ Timepoint\*

SubDomain + Etiology + (1+Timepoint | ID) + (1 | Item)

**Random effects: Variance (SD)**

Term		Log odds (SE)	Probability	z-value	Significance level	Intercept: ID	Intercept: Item	Slope: Time-by-ID; Corr
Intercept		0.59 (0.48)	0.64	1.23	N.S.	0.92 (0.96)	2.11 (1.45)	0.01 (0.09); -0.37
Timepoint		-0.01 (0.03)	0.50	-0.31	N.S.			
Etiology TBI		-0.49 (0.39)	0.38	-1.25	NS.			
SubDomain	Auditory Comprehension	2.17 (0.42)	0.90	5.16	***			
	Verbal Expression	1.54 (0.43)	0.82	3.56	***			
	Reading Comprehension	1.51 (0.43)	0.82	3.53	***			
	Written Expression	1.73 (0.49)	0.85	3.54	***			
	Orientation	2.68 (0.61)	0.94	4.41	***			
	Memory	-0.68 (0.42)	0.34	-1.62	N.S.			
	Problem Solving	2.81 (0.45)	0.94	6.24	***			
	Visuospatial/ Constructional	0.97 (0.48)	0.73	2.02	*			
	Upper Limb/Facial/ Instrumental Apraxia	2.51 (0.52)	0.92	4.81	***			
	Timepoint-by-SubDomain interaction							
	Auditory Comprehension	0.07 (0.03)	0.52	2.00	*			
	Verbal Expression	0.22 (0.03)	0.55	6.81	***			
	Reading Comprehension	0.11 (0.04)	0.53	2.99	**			
	Written Expression	0.16 (0.04)	0.54	4.06	***			
Orientation		0.29 (0.15)	0.57	1.92	.05			

Memory	0.17 (0.03)	0.54	4.98	***
Problem Solving	0.23 (0.06)	0.56	3.78	***
Visuospatial/ Constructional	0.11 (0.04)	0.53	2.69	**
Upper Limb/Facial/ Instrumental Apraxia	0.08 (0.06)	0.52	1.30	N.S.

---

*Note.* Timepoint was coded as a numeric predictor: Pre-treatment = “0”; Post-treatment 1 = “1”; Post-treatment 2 = “2”; Post-treatment 3 = “3.” Etiology was dummy-coded (i.e., TBI and non-TBI with non-TBI as the reference level). SubDomain was dummy-coded with Attention as the reference level. The correlation value refers to the strength of association between the random slope of timepoint and the random intercept of participant. The negative value reflects participants with lower baseline accuracy have steeper slopes.

## Within-group analyses for the deferred treatment/usual care control group

### *Full results of subdomain-intercepts only model for control group*

<b>Model syntax:</b> cbind(obs_score, (poss_score - obs_score)) ~ Timepoint + SubDomain + Etiology + (1 + Timepoint   ID) + (1   Item)					<b>Random effects: Variance (SD)</b>		
<b>Term</b>	<b>Log odds (SE)</b>	<b>Probability</b>	<b>z-value</b>	<b>Significance level</b>	<b>Intercept: ID</b>	<b>Intercept: Item</b>	<b>Slope: Time-by-ID; Corr</b>
Intercept	0.09 (0.50)	0.52	0.18	N.S.	0.64	1.91	0.03
Timepoint	0.01 (0.07)	0.50	0.09	N.S.	(0.80)	(1.38)	(0.17); -0.56
Etiology TBI	0.36 (0.39)	0.59	0.91	N.S.			
SubDomain Auditory Comprehension	0.17 (0.08)	0.54	2.10	*			
Verbal Expression	0.03 (0.07)	0.51	0.50	N.S.			
Reading Comprehension	0.005 (0.08)	0.50	0.06	N.S.			
Written Expression	-0.04 (0.09)	0.49	-0.51	N.S.			
Orientation	0.37 (0.35)	0.59	1.05	N.S.			
Memory	0.05 (0.07)	0.51	0.72	N.S.			
Problem Solving	0.23 (0.13)	0.56	1.85	.064			
Visuospatial/Constructional	-0.08 (0.09)	0.48	-0.93	N.S.			
Upper Limb/Facial/Instrumental Apraxia	-0.12 (0.14)	0.47	-0.84	N.S.			

*Note.* Timepoint was coded as a numeric predictor: Pre-treatment = “0”; Post-treatment 1 = “1”; Post-treatment 2 = “2”; Post-treatment 3 = “3.” Etiology (i.e., TBI, non-TBI) was dummy-coded with non-TBI as the reference level. SubDomain was dummy-coded with Attention as the reference level. The correlation value refers to the strength of association between the random slope of timepoint and the random intercept of participant. The negative value reflects participants with lower baseline accuracy have steeper slopes.

**Full results of subdomain- intercepts and slope model for control group**

Model syntax: glmer(cbind(obs\_score,(poss\_score-obs\_score)) ~ Timepoint\*

SubDomain + Etiology + (1+Timepoint | ID) + (1 | Item)

**Random effects: Variance (SD)**

Term	Log odds (SE)	Probability	z-value	Significance level	Random effects: Variance (SD)		
					Intercept: ID	Intercept: Item	Slope: Time-by-ID; Corr
					0.64 (0.80)	1.91 (1.38)	0.03 (0.17) ; - 0.54
Intercept	0.09 (0.50)		0.18	N.S.			
Timepoint	0.01 (0.07)		0.09	N.S.			
Etiology TBI	0.36 (0.39)		0.91	N.S.			
SubDomain Auditory	2.61 (0.43)		6.03	***			
Comprehension							
Verbal Expression	2.38 (0.44)		5.38	***			
Reading	2.21 (0.44)		5.03	***			
Comprehension							
Written Expression	2.44 (0.51)		4.82	***			
Orientation	3.08 (0.65)		4.72	***			
Memory	-0.33 (0.43)		-0.76	N.S.			
Problem Solving	2.72 (0.46)		5.92	***			
Visuospatial/ Constructional	0.74 (0.48)		1.53	N.S.			
Upper Limb/Facial/ Instrumental Apraxia	3.16 (0.54)		5.90	***			
Timepoint-by- Auditory	0.17 (0.08)		2.10	*			
Comprehension							
Verbal Expression	0.03 (0.07)		0.50	N.S.			

SubDomain interaction	Reading	0.005 (0.08)	0.50	N.S.
	Comprehension			
	Written Expression	-0.04 (0.09)	-0.51	N.S.
	Orientation	0.37 (0.35)	1.05	N.S.
	Memory	0.05 (0.07)	0.72	N.S.
	Problem Solving	0.23 (0.13)	1.85	0.06
	Visuospatial/ Constructional	-0.08 (0.09)	-0.93	N.S.
	Upper Limb/Facial/ Instrumental Apraxia	-0.12 (0.14)	-0.84	N.S.

---

*Note.* Timepoint was coded as a numeric predictor: Pre-treatment = “0”; Post-treatment 1 = “1”; Post-treatment 2 = “2”; Post-treatment 3 = “3.” Etiology was dummy-coded (i.e., TBI and non-TBI with non-TBI as the reference level). SubDomain was dummy-coded with Attention as the reference level. The correlation value refers to the strength of association between the random slope of timepoint and the random intercept of participant. The negative value reflects participants with lower baseline accuracy have steeper slopes.



### Domain-specific slope contrast matrix

```
contrast.matrix.slope <- rbind(  
  `timepoint:AC`      =c(0,1,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0,0,0),  
  `timepoint:AP`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0,0),  
  `timepoint:ME`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0),  
  `timepoint:OR`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0),  
  `timepoint:PS`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0),  
  `timepoint:RC`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0),  
  `timepoint:VC`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0),  
  `timepoint:VE`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0),  
  `timepoint:WR`      =c(0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1))
```

### Code to extract the domain-specific intercepts

```
summary(glht(m_subdomain, contrast.matrix.slope))
```

**Key:** AC = auditory comprehension; AP = apraxia; ME = memory; OR = orientation; PS = problem solving; RC = reading comprehension; VC = visuospatial/constructional; VE = verbal expression; WR = written expression