

Table 3a. Group comparison of WE performance (age-corrected standardized scores) and main effects of group and age on WE performance

Variable	Group		Statistic			
	TBI M (SD)	OI M (SD)	Group Effect F (p)	<i>d</i>	Age Effect F (p)	<i>d</i>
TMI	8.50 (2.34)	9.64 (1.71)	1.52 (0.223)	-0.31	5.89 (.019)	0.62
Writing Fluency	94.23 (18.12)	102.93 (13.52)	4.46 (.039)	0.54	0.71 (.402)	0.21
Spelling	99.83 (16.95)	105.14 (13.87)	4.30 (.043)	0.53	6.07 (.017)	0.63

Note. M= mean, SD= Standard Deviation, *d*=Cohen's *d*.

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Table 3b. Correlation of age at injury and severity of injury (TBI group only) with performance on WE measures using age-corrected standardized scores

	TBI	OI	Total	Injury Severity (TBI)
TMI r (p)	-0.32 (.074)	-0.31 (.143)	-0.37 (.004)	-0.42 (.014)
Writing Fluency r (p)	0.11 (.532)	0.11 (.594)	0.02 (.874)	-0.55 (<.001)
Spelling r (p)	0.33 (.051)	0.26 (.191)	0.23 (.071)	-0.28 (.132)

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Table 4. Group comparison of mean FA and MD values for white matter tracts with size of effect based on group

		TBI (LSM)	OI (LSM)	Effect of Group F (p), <i>df</i> =(1,60)	<i>d</i>	Effect of Age F (p), <i>df</i> =(1,60)
Anterior Thalamic Radiation	FA	0.428	0.449	12.77 (<.001)	-0.91	8.25 (.006)
	MD†	0.818	0.785	16.84 (<.001)	0.99	11.87 (.001)
Cingulum Bundle	FA	0.428	0.456	15.37 (<.001)	-0.99	5.04 (.028)
	MD†	0.794	0.772	8.65 (.005)	0.75	19.02 (<.001)
Corticospinal Tract	FA	0.519	0.534	6.41(.014)	-0.64	6.71 (.012)
	MD†	0.763	0.738	13.11 (<.001)	0.92	11.23 (.001)
Inferior Fronto-Occipital Fasciculus	FA	0.413	0.437	15.54 (<.001)	-0.99	6.81 (.011)
	MD†	0.819	0.795	9.42 (.003)	0.78	15.99 (<.001)
Inferior Longitudinal Fasciculus	FA	0.394	0.414	12.83 (<.001)	-0.91	7.00 (.010)
	MD†	0.833	0.812	9.17 (.004)	0.77	21.01 (<.001)
Superior Longitudinal Fasciculus	FA	0.402	0.423	12.87 (<.001)	-0.91	9.06 (.004)
	MD†	0.796	0.775	8.73 (.005)	0.75	27.04 (<.001)
Uncinate Fasciculus	FA	0.387	0.414	15.50 (<.001)	-0.99	4.61 (.036)
	MD†	0.814	0.787	10.67 (.002)	0.83	10.44 (.002)

Note. †MD values expressed as 10⁻³ mm²/sec. LSM: Least Squares Means, *d*= Cohen's *d*.

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Table 5. Effect of group and age on mean radial and axial diffusivity values for white matter tracts with size of effect of group

		TBI (LSM)*	OI (LSM)*	Effect of Group F (p), <i>df</i> =(1,60)	<i>d</i>	Effect of Age F (p), <i>df</i> = (1,60)	<i>d</i>
Anterior Thalamic Radiation	Radial	0.61	0.58	18.17 (<.001)	1.08	10.90 (.002)	0.84
	Axial	1.22	1.21	6.66 (.012)	0.65	7.27 (.009)	0.68
Cingulum Bundle	Radial	0.59	0.56	14.96 (<.001)	0.98	14.68 (<.001)	0.97
	Axial	1.20	1.21	0.01 (.934)	-0.03	11.82 (.001)	0.87
Corticospinal Tract	Radial	0.51	0.49	11.98 (.001)	0.88	10.18 (.002)	0.81
	Axial	1.26	1.24	6.32 (.015)	0.64	5.33 (.024)	0.59
Inferior Fronto-Occipital Fasciculus	Radial	0.62	0.59	15.09 (<.001)	0.99	14.08 (<.001)	0.95
	Axial	1.22	1.22	0.24 (.625)	0.12	8.87 (.004)	0.76
Inferior Longitudinal Fasciculus	Radial	0.64	0.62	15.16 (<.001)	0.99	19.21 (<.001)	1.11
	Axial	1.22	1.22	0.44 (0.508)	0.17	10.59 (.002)	0.83
Superior Longitudinal Fasciculus	Radial	0.61	0.59	13.78 (<.001)	0.94	25.94 (<.001)	1.29
	Axial	1.16	1.17	0.67 (.415)	-0.21	12.72 (<.001)	0.90
Uncinate Fasciculus	Radial	0.63	0.60	14.43 (<.001)	0.96	8.74 (.004)	0.75
	Axial	1.17	1.17	0.80 (.374)	0.23	7.50 (.008)	0.69

Note. LSM: Least Squares Means, *Expressed as 10^{-3} mm²/sec . To correct for post hoc analysis, significance is set at $p < .004$, *d*= Cohen's *d*.

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Table 6a. Predicting TMI performance from white matter metrics of hypothesized pathways

		TMI Tract Effect F (p) <i>df</i> =(1,54)*	<i>d</i>	TMI Age Effect F (p) <i>df</i> =(1,54)*	TMI Group Effect F (p) <i>df</i> =(1,54)
Anterior Thalamic Radiation	FA	6.47 (.014)	0.65	12.81 (<.001)	1.63 (.207)
	MD†	5.19 (.033)	0.58	12.11 (.001)	0.53 (.472)
Cingulum Bundle	FA	2.96 (.091)	-0.44	7.15 (.007)	0.51 (.478)
	MD†	1.01 (.318)	-0.26	9.86 (.003)	0.52 (.472)
Corticospinal Tract	FA	6.90 (.011)	0.67	12.24 (.001)	1.73 (.194)
	MD†	5.30 (.034)	0.58	11.88 (.001)	.06 (.814)
Inferior Fronto-Occipital Fasciculus	FA	3.88 (.076)	0.50	11.20 (.001)	1.03 (.315)
	MD†	3.18 (.082)	-0.45	11.53 (.001)	1.08 (.304)
Inferior Longitudinal Fasciculus	FA	---	---	---	---
	MD†	---	---	---	---
Superior Longitudinal Fasciculus	FA	3.78 (.063)	-0.49	11.19 (.002)	1.75 (.192)
	MD†	1.66 (.201)	-0.33	10.59 (.002)	.91 (.346)
Uncinate Fasciculus	FA	4.54 (.042)	0.54	11.08 (.002)	0.55 (.460)
	MD†	3.15 (.017)	-0.45	11.09 (.002)	.32 (.572)

Note. †MD values multiplied by 1000, *d*= Cohen's *d*. *For TMI, data from 6 participants (3 in each group) was unavailable as normative data were not available for children under 7 years of age at time of testing.

Table 6b. Predicting Writing Fluency performance from white matter metrics of hypothesized pathways

		Writing Fluency Tract Effect F (p) <i>df</i> =(1,60)	<i>d</i>	Writing Fluency Age Effect F (p) <i>df</i> =(1,60)	Writing Fluency Group Effect F (p) <i>df</i> =(1,60)
Anterior Thalamic Radiation	FA	16.53 (<.001)	1.03	0.49 (.487)	.07 (.789)
	MD	0.20 (.661)	-0.11	0.66 (.421)	6.35 (.042)
Cingulum Bundle	FA	20.56 (<.001)	1.15	0.15 (.703)	.01 (.910)
	MD	0.10 (.762)	-0.08	0.47 (.498)	5.35 (.044)
Corticospinal Tract	FA	14.46 (<.001)	0.96	0.48 (.499)	.23 (.643)
	MD	5.40 (.019)	0.59	0.21 (.652)	1.07 (.314)
Inferior Fronto-occipital Fasciculus	FA	---	---	---	---
	MD	---	---	---	---
Inferior Longitudinal Fasciculus	FA	---	---	---	---
	MD	---	---	---	---
Superior Longitudinal Fasciculus	FA	---	---	---	---
	MD	---	---	---	---
Uncinate Fasciculus	FA	---	---	---	---
	MD	---	---	---	---

Note. †MD values multiplied by 1000, *d*= Cohen's *d*.

Table 6c. Predicting Soelling performance from white matter metrics of hypothesized pathways

		Spelling Tract Effect F (p) <i>df</i> =(1,60)	<i>d</i>	Spelling Age Effect F (p) <i>df</i> =(1,60)	Spelling Group Effect F (p) <i>df</i> =(1,60)
Anterior Thalamic Radiation	FA	---	---	---	---
	MD	---	---	---	---
Cingulum Bundle	FA	---	---	---	---
	MD	---	---	---	---
Corticospinal Tract	FA	0.57 (.449)	-0.19	2.72 (.104)	1.34 (.248)
	MD	0.95 (.342)	-0.25	2.40 (.133)	.81 (.371)
Inferior Fronto-occipital Fasciculus	FA	---	---	---	---
	MD	---	---	---	---
Inferior Longitudinal Fasciculus	FA	3.14 (.079)	-0.44	2.38 (.131)	2.03 (.159)
	MD	1.57 (.212)	-0.32	1.40 (.242)	.92 (.342)
Superior Longitudinal Fasciculus	FA	3.42 (.071)	-0.47	2.06 (.158)	1.71 (.201)
	MD	1.07 (.313)	-0.26	1.33 (.250)	.43 (.514)
Uncinate Fasciculus	FA	---	---	---	---
	MD	---	---	---	---

Note. †MD values multiplied by 1000, *d*= Cohen's *d*.