On-line Table 1: Severity and chronicity[a]

Articles (Patients)	Mild	Mild Complicated	Moderate	Severe	Total
Acute	15[b] (183)	2[c] (31)	6[d] (161)	5[e] (98)	27 (495)
Subacute	21[f] (324)	7[g] (38)	16[h] (209)	26[i] (446)	72 (1040)
Chronic	16[j] (234)	10[k] (87)	11[l] (66)	21[m] (291)	49 (678)
Total	53 (764)	19 (156)	30 (436)	47 (835)	

[a]The number of articles (patients) reported for each time frame at each level of injury severity. Articles were only included if there was sufficient information to determine both the severity and the chronicity of individual patient injuries. Articles may be included multiple times if they studied subjects with multiple severities and/or multiple chronicities. This Table corresponds to Fig 3 in the text.
[b] Supplemental references 4, 6, 18, 27, 33, 45, 47, 52, 54, 56, 57, 83, 89, 94, 96.
[c] Supplemental references 2, 37.
[d] Supplemental references 37-39, 62, 67, 83.
[e] Supplemental references 47, 55, 62, 83, 85.
[f] Supplemental references 3, 19, 23, 26-28, 31, 35, 40, 47, 49, 54, 56, 59, 65, 77-79, 83, 92, 100.
[g] Supplemental references 1, 2, 26, 40, 78, 91, 93.
[h] Supplemental references 1, 3, 5, 22, 25, 35, 38-40, 59, 67, 83, 86, 91-93.
[i] Supplemental references 1, 3, 7, 14-17, 22, 29, 30, 40, 43, 47, 50, 59, 63, 68, 70, 76, 82-86, 91, 93.
[j] Supplemental references 8, 21, 23, 31, 33, 36, 41, 44, 46, 48, 51, 64, 65, 73, 98, 99.
[k] Supplemental references 20, 46, 51, 64, 65, 71, 73, 74, 93, 98.
[l] Supplemental references 20, 22, 39, 41, 46, 71, 74, 75, 80, 93, 98.
[m] Supplemental references 11, 13, 20, 22, 30, 34, 58, 68, 69, 71, 74-76, 80, 81, 87, 88, 93, 95, 97, 98.

On-line Table 2: Most common locations of abnormal FA by ROI analysis[a]

Locations	No. of Findings
Corpus callosum, anterior/genu	22[b,c,d]/30[e]
Corpus callosum posterior/splenium	21[f,g,d]/32[h]
Posterior limb of the internal capsule	11[i]/22[j]
Corpus callosum, body	10[k]/18[l]
Frontal lobe	7[m]/10[n]
Corona radiata	6[o,p,d]/10[q]
Cingulum bundle	7[r]/8[s]
Centrum semiovale	6[t]/11[u]
Brain stem	5[v]/8[w]
Cerebral peduncle	5[x]/7[y]

[a] Values indicate the number of articles reporting abnormally low FA. Denominators represent the number of studies that assessed FA at these locations, including those that did not find abnormal changes in FA.
[b] Supplemental references 1, 2, 13, 20, 36-39, 43, 48, 51, 52, 54, 58, 63, 64, 81, 86, 93, 95, 98, 99.
[c] Supplemental reference 54.
[d] Indicates that additional articles reported findings of abnormally high FA.
[e] Supplemental references 1, 2, 4, 13, 20, 21, 33, 36-40, 43, 46, 48, 49, 51, 52, 54, 58, 59, 63, 64, 81, 86, 92, 93, 95, 98, 99.
[f] Supplemental references 1, 2, 13, 20, 23, 32, 33, 36-39, 43, 52, 58, 62, 63, 76, 81, 86, 93, 95.
[g] Supplemental reference 4.
[h] Supplemental references 1, 2, 4, 13, 20, 21, 23, 32, 33, 36-40, 43, 46, 48, 49, 52, 54, 58, 59, 62, 63, 76, 81, 86, 92, 93, 95, 98, 100.
[i] Supplemental references 2, 11, 23, 32, 33, 38, 64, 76, 82, 95, 97.
[j] Supplemental references 1, 2, 4, 10-12, 23, 26, 32, 33, 38, 41, 46, 48, 52, 64, 76, 82, 86, 95, 97, 98.
[k] Supplemental references 13, 20, 38-40, 43, 46, 52, 64, 93.
[l] Supplemental references 13, 20, 21, 36-40, 43, 46, 52, 54, 64, 81, 92, 93, 98, 100.
[m] Supplemental references 34, 43, 49, 55, 66, 81, 92.
[n] Supplemental references 34, 38, 43, 49, 55, 66, 81, 92, 95, 100.
[o] Supplemental references 10, 36, 46, 51, 54, 64, 97.
[p] Supplemental reference 54.
[q] Supplemental references 10, 21, 36, 46, 51, 52, 54, 58, 64, 97.
[r] Supplemental references 8, 36, 43, 49, 51, 64, 99.
[s] Supplemental references 8, 21, 36, 43, 49, 51, 64, 99.
[t] Supplemental references 33, 34, 64, 76, 82, 97.
[u] Supplemental references 1, 11, 23, 26, 33, 34, 58, 64, 76, 82, 97.
[v] Supplemental references 26, 63, 64, 82, 97.
[w] Supplemental references 10, 12, 26, 48, 63, 64, 82, 97.
[x] Supplemental references 11, 15, 49, 64, 97.
[y] Supplemental references 10-12, 15, 49, 64, 97.

On-line Table 3: Most common locations of abnormal FA by tractography analysis[a]

Locations	No. of Findings
Corpus callosum, total	10[b,c,d]/11[e]
Corpus callosum, anterior/genu	8[f]/8[g]
Corpus callosum, posterior/splenium	7[h]/8[i]
Cingulum bundle	6[j]/10[k]
Fornix	5[l]/7[m]
Corpus callosum, body	4[n]/6[o]
Fronto-occipital fasciculus	4[p]/5[q]
Inferior longitudinal fasciculus	4[r]/5[s]
Uncinate fasciculus	4[t]/5[u]
Hippocampus	3[v]/3[w]

a Values indicate the number of articles reporting abnormally low FA. Denominators represent the number of studies that assessed FA at these locations, including those that did not find abnormal changes in FA.
[b] Supplemental references 9, 29, 42, 47, 67, 73, 75, 80, 84, 95.
[c] Supplemental reference 89.
[d] Indicates that 1 additional article reported findings of abnormally high FA.
[e] Supplemental references 9, 29, 41, 42, 47, 67, 73, 75, 80, 84, 95.
[f] Supplemental references 42, 50, 58, 72, 75, 77, 84, 88.
[g] Supplemental references 42, 50, 58, 72, 75, 77, 84, 88.
[h] Supplemental references 42, 50, 58, 72, 77, 84, 88.
[i] Supplemental references 25, 42, 50, 58, 72, 77, 84, 88.
[j] Supplemental references 7, 50, 55, 67, 73, 91.
[k] Supplemental references 7, 25, 41, 50, 55, 67, 73, 75, 77, 91.
[l] Supplemental references 50, 58, 67, 77, 80.
[m] Supplemental references 41, 50, 58, 67, 77, 80, 84.
[n] Supplemental references 42, 50, 84, 88.
[o] Supplemental references 42, 50, 72, 77, 84, 88.
[p] Supplemental references 7, 50, 67, 77.
[q] Supplemental references 7, 50, 67, 75, 77.
[r] Supplemental references 7, 50, 67, 77.
[s] Supplemental references 7, 50, 67, 75, 77.
[t] Supplemental references 7, 50, 55, 77.
[u] Supplemental references 7, 50, 55, 75, 77.
[v] Supplemental references 17, 50, 77.
[w] Supplemental references 17, 50, 77.

On-line Table 4: Most common locations of abnormal FA by whole-brain analysis[a]

Locations	Findings
Superior longitudinal fasciculus	7[b]/25[c]
Corpus callosum, anterior/genu	7[d]
Inferior longitudinal fasciculus, inferior	7[e]
Posterior limb of the internal capsule	6[f]
Fronto-occipital fasciculus	6[g]
Cingulum bundle	5[h]
Corona radiata	5[i]
Corpus callosum, overall	5[j]
Corpus callosum, body	5[k]
Fornix	5[l]
Frontal lobe	5[m]
Temporal lobe	5[n]

[a] Values indicate the number of articles reporting low FA in these locations. Twenty-five articles used whole-brain analysis to assess FA throughout the entire brain. Whole-brain analysis examines all brain regions; therefore, the denominators are all equal.
[b] Supplemental references 5, 31, 35, 50, 53, 95, 98.
[c] Supplemental references 5, 6, 12, 18, 27, 31, 33, 35, 44-46, 50, 53, 56, 58, 68, 70, 71, 74, 78, 80, 86, 95, 98, 100.
[d] Supplemental references 27, 35, 44, 53, 58, 95, 98.
[e] Supplemental references 31, 35, 50, 68, 70, 95, 98.
[f] Supplemental references 4, 12, 33, 35, 86, 95.
[g] Supplemental references 5, 35, 50, 68, 78, 98.
[h] Supplemental references 5, 35, 68, 80, 95.
[i] Supplemental references 5, 35, 50, 53, 95.
[j] Supplemental references 5, 35, 50, 68, 74.
[k] Supplemental references 27, 35, 58, 80, 95.
[l] Supplemental references 35, 50, 68, 80, 95.
[m] Supplemental references 31, 44, 45, 74, 80.
[n] Supplemental references 31, 44, 74, 78, 80.

On-line Table 5: Most common locations of abnormal mean diffusivity by ROI analysis[a]

Locations	Findings
Corpus callosum posterior/splenium	10[b,c,d]/20[e]
Corpus callosum anterior/genu	10[f]/16[g]
Frontal lobe	9[h]/10[i]
White matter	7[j]/7[k]
Thalamus	4[l]/6[m]

[a] Values indicate the number of articles reporting abnormally low MD. Denominators represent the number of studies that assessed MD at these locations, including those that did not find abnormal changes in MD.
[b] Supplemental references 13, 23, 33, 43, 59, 62, 63, 81, 93, 95.
[c] Supplemental reference 32.
[d] Indicates that 1 additional article reported findings of abnormally high MD.
[e] Supplemental references 2, 13, 23, 32, 33, 37, 38-40, 43, 48, 49, 59, 62, 63, 76, 81, 93, 95, 100.
[f] Supplemental references 13, 37, 38, 43, 48, 59, 63, 81, 93, 95.
[g] Supplemental references 2, 13, 33, 37, 38-40, 43, 48, 49, 59, 63, 81, 93, 95, 100.
[h] Supplemental references 34, 43, 49, 55, 60, 66, 81, 95, 100.
[i] Supplemental references 34, 38, 43, 49, 55, 60, 66, 81, 95, 100.
[j] Supplemental references 10, 23, 59, 61-63, 90.
[k] Supplemental references 10, 23, 59, 61-63, 90.
[l] Supplemental references 23, 59, 60, 63.
[m] Supplemental references 23, 26, 32, 59, 60, 63.

On-line Table 6: Most common locations of abnormal mean diffusivity by tractography analysis[a]

Locations	Findings
Corpus callosum anterior/genu	4[b]/4[c]
Fronto-occipital fasciculus	4[d]/5[e]
Inferior longitudinal fasciculus	4[f]/5[g]
Uncinate fasciculus	4[h]/4[i]
Cingulum bundle	3[j,k,l]/7[m]

[a] Values indicate the number of articles reporting abnormally low MD. Denominators represent the number of studies that assessed MD at these locations, including those that did not find abnormal changes in MD.
[b] Supplemental references 42, 50, 72, 77.
[c] Supplemental references 42, 50, 72, 77.
[d] Supplemental references 7, 19, 50, 77.
[e] Supplemental references 7, 19, 50, 67, 77.
[f] Supplemental references 7, 19, 50, 77.
[g] Supplemental references 7, 19, 50, 67, 77.
[h] Supplemental references 7, 50, 55, 77.
[i] Supplemental references 7, 50, 55, 77.
[j] Supplemental references 7, 50, 55.
[k] Supplemental reference 94.
[l] Indicates that 1 additional article reported findings of abnormally high MD.
[m] Supplemental references 7, 50, 55, 67, 77, 91, 94.

On-line Table 7: Most common locations of abnormal mean diffusivity by whole-brain analysis[a]

Locations	Findings
Cingulum bundle	6[b]/13[c]
Corpus callosum, total	5[d]
Superior longitudinal fasciculus	4[e]
Posterior limb of the internal capsule	4[f]
Fronto-occipital fasciculus	4[g]
Frontal lobe	4[h]

[a] Values indicate the number of articles reporting abnormally increased MD in these locations. Thirteen articles used whole-brain analysis to assess MD throughout the entire brain. Whole-brain analysis examines all brain regions; therefore, the denominators are all equal.
[b] Supplemental references 5, 18, 35, 71, 74, 95.
[c] Supplemental references 5, 18, 27, 35, 44, 45, 50, 56, 70, 71, 74, 78, 95.
[d] Supplemental references 5, 27, 35, 50, 56.
[e] Supplemental references 5, 35, 56, 95.
[f] Supplemental references 5, 35, 50, 95.
[g] Supplemental references 5, 35, 56, 95.
[h] Supplemental references 18, 44, 45, 74.

On-line Table 8: Relationship of DTI metrics to cognitive outcome measures[a]

DTI Measure	Correlation	Attention	Executive Function	Memory	Motor	Psychomotor/Processing	Visuospatial	IQ
FA	No correlation	2[b]	6[c]	6[d]	1[e]	1[f]	0	6[g]
	Negative correlation	6[h]	5[i]	2[j]	0	2[k]	0	0
	Positive correlation	11[l]	9[m]	14[n]	4[o]	5[p]	4[q]	2[r]
MD	No correlation	1[s]	4[t]	3[u]	1[v]	2[w]	0	0
	Negative correlation	4[x]	6[y]	7[z]	0	1[aa]	3[bb]	0
	Positive correlation	3[cc]	2[dd]	2[ee]	0	0	1[ff]	0

Note:—IQ indicates intelligence quotient.

[a] Total number of articles assessing relationships between DTI measures and cognitive outcomes. Cognitive outcome measures have been categorized into 7 domains (top row). Articles are classified as reporting positive correlation, negative correlation, or no correlation. Positive correlation indicates a correlation coefficient greater than zero. Negative correlation indicates a correlation coefficient less than zero. No correlation includes articles that reported analyzing relationships between the DTI measure and cognitive outcomes within a domain but either reported finding no correlation (correlation coefficient equal to zero) or a correlation with a *P* value $>$ .05.

[b] Supplemental references 38, 57.

[c] Supplemental references 3, 25, 35-37, 54.

[d] Supplemental references 3, 5, 46, 54, 58, 74.

[e] Supplemental reference 12.

[f] Supplemental reference 35.

[g] Supplemental references 3, 12, 14, 54, 58, 92.

[h] Supplemental references 36-38, 51, 92, 93.

[i] Supplemental references 5, 6, 32, 66, 98.

[j] Supplemental references 36, 94.

[k] Supplemental references 51, 96.

[l] Supplemental references 8, 23, 36-38, 46, 50, 54, 65, 67, 88.

[m] Supplemental references 4, 38, 41, 42, 46, 50, 57, 80, 92.

[n] Supplemental references 7, 14, 21, 28, 35, 41, 43, 50, 51, 55, 65, 67, 80, 81.

[o] Supplemental references 9-11, 20.

[p] Supplemental references 4, 12, 23, 64, 67.

[q] Supplemental references 37, 38, 39, 67.

[r] Supplemental references 20, 80.

[s] Supplemental reference 36.

[t] Supplemental references 4, 36, 39, 42.

[u] Supplemental references 35, 36, 50.

[v] Supplemental references 36.

[w] Supplemental references 35, 74.

[x] Supplemental references 8, 38, 50, 67.

[y] Supplemental references 5, 25, 35, 38, 50, 60.

[z] Supplemental references 5, 17, 28, 41, 55, 67, 81.

[aa] Supplemental reference 67.

[bb] Supplemental references 38, 39, 67.

[cc] Supplemental references 37-39.

[dd] Supplemental references 37, 91.

[ee] Supplemental references 7, 74.

[ff] Supplemental reference 73.

On-line Table 9: Relationship of DTI metrics to general clinical assessments[a]

DTI Measure	Correlation	Global Outcome	GCS	Postconcussive Symptoms
FA	No correlation	3[b]	8[c]	6[d]
	Negative correlation	4[e]	1[f]	3[g]
	Positive correlation	11[h]	5[i]	3[j]
MD	No correlation	0	0	1[k]
	Negative correlation	5[l]	4[m]	2[n]
	Positive correlation	1[o]	1[p]	1[q]

[a] Total number of articles assessing relationships between DTI measures and global outcome measures, GCS, or postconcussive symptoms. Articles are classified as reporting positive correlation, negative correlation, or no correlation. Positive correlation indicates a correlation coefficient greater than zero. Negative correlation indicates a correlation coefficient less than zero. No correlation includes articles that reported analyzing relationships between the DTI measure and cognitive outcomes within a domain but either reported finding no correlation (correlation coefficient equal to zero) or a correlation with a *P* value >.05.

[b] Supplemental references 14, 57, 80.

[c] Supplemental references 1, 3, 20, 37, 61, 62, 87, 91.

[d] Supplemental references 18, 21, 54, 80, 81, 92.

[e] Supplemental references 20, 32, 59, 66.

[f] Supplemental reference 42.

[g] Supplemental references 41, 53, 78.

[h] Supplemental references 1, 42, 50, 58, 63, 70, 76, 81, 82, 84, 88.

[i] Supplemental references 5, 6, 32, 66, 98.

[j] Supplemental references 4, 89, 99.

[k] Supplemental reference 81.

[l] Supplemental references 42, 50, 59, 63, 81.

[m] Supplemental references 5, 42, 66, 91.

[n] Supplemental references 4, 18.

[o] Supplemental reference 81.

[p] Supplemental references 32.

[q] Supplemental references 78.

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