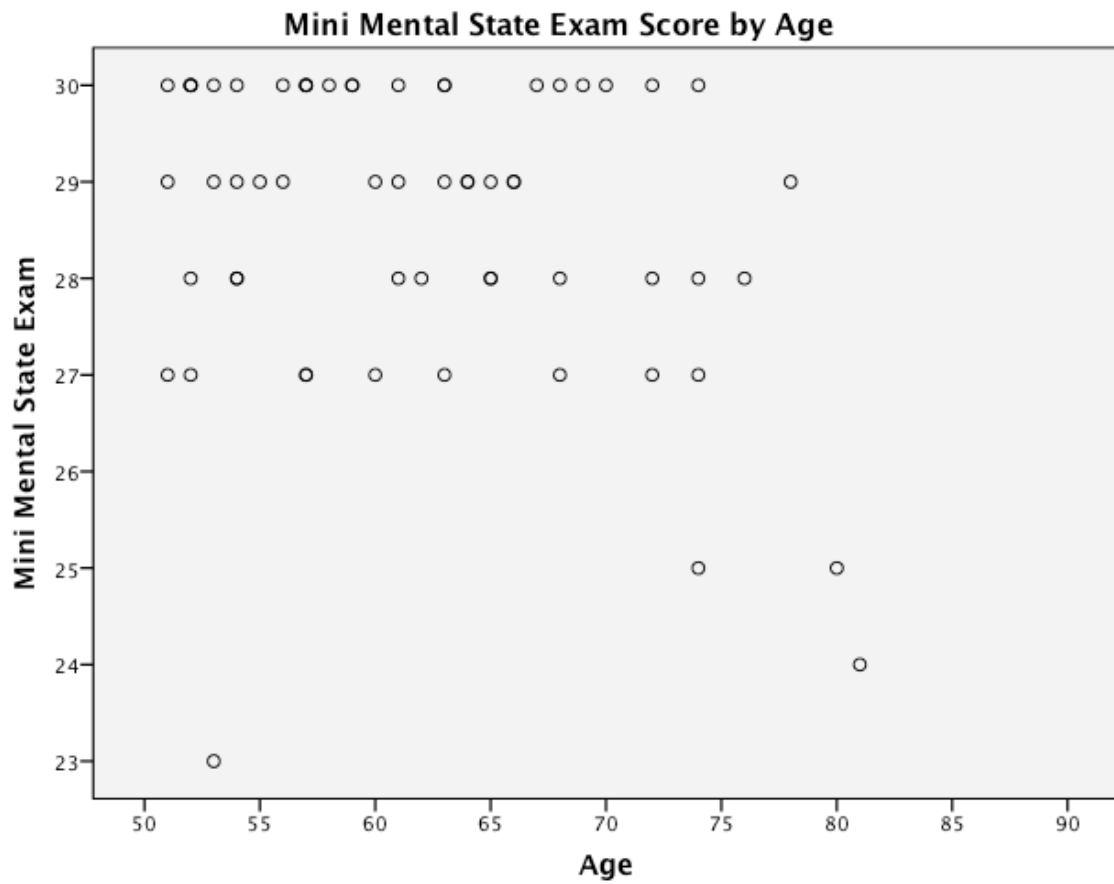
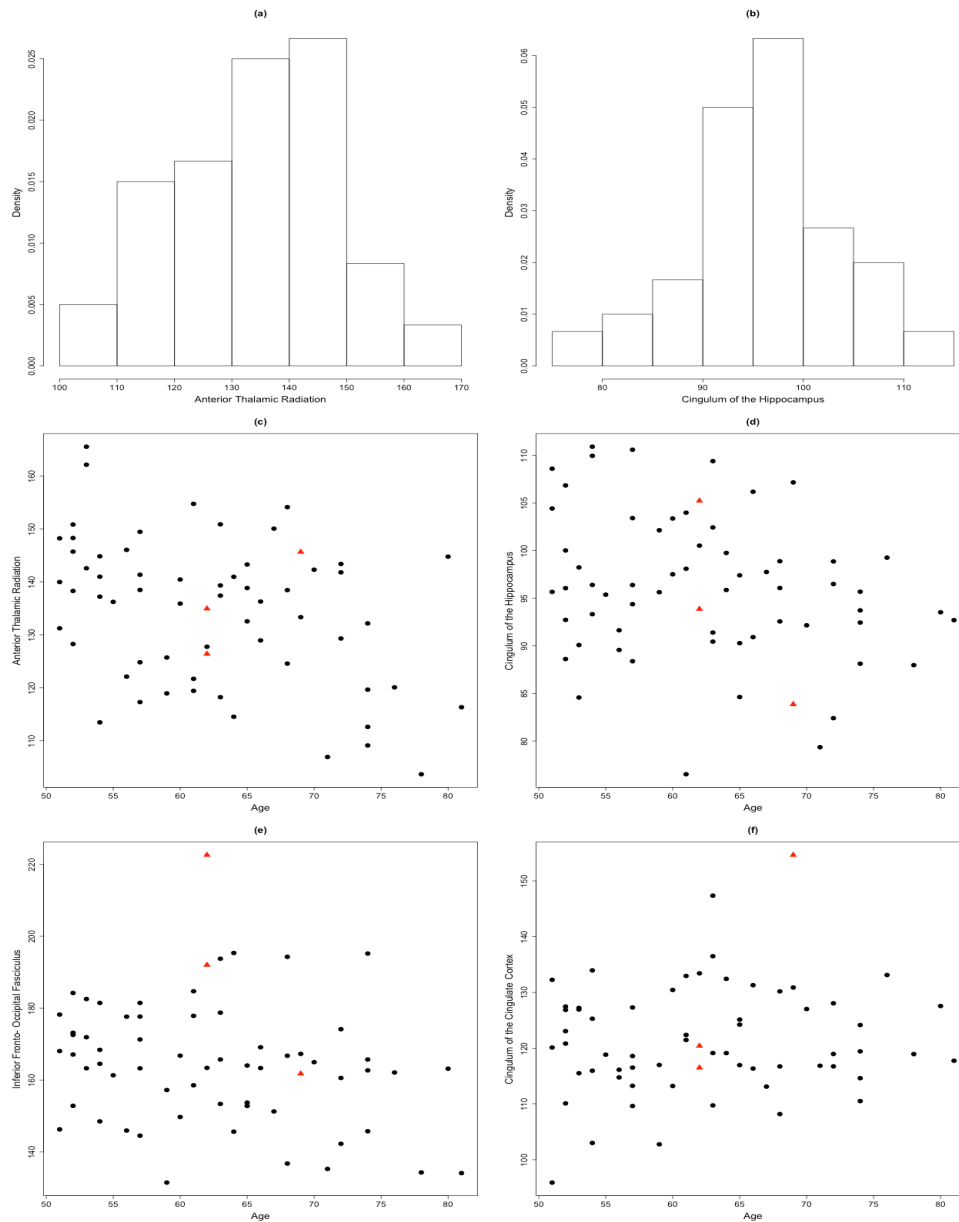


Figure e-1. Relationship between age and total score on the Mini Mental State Exam (MMSE)



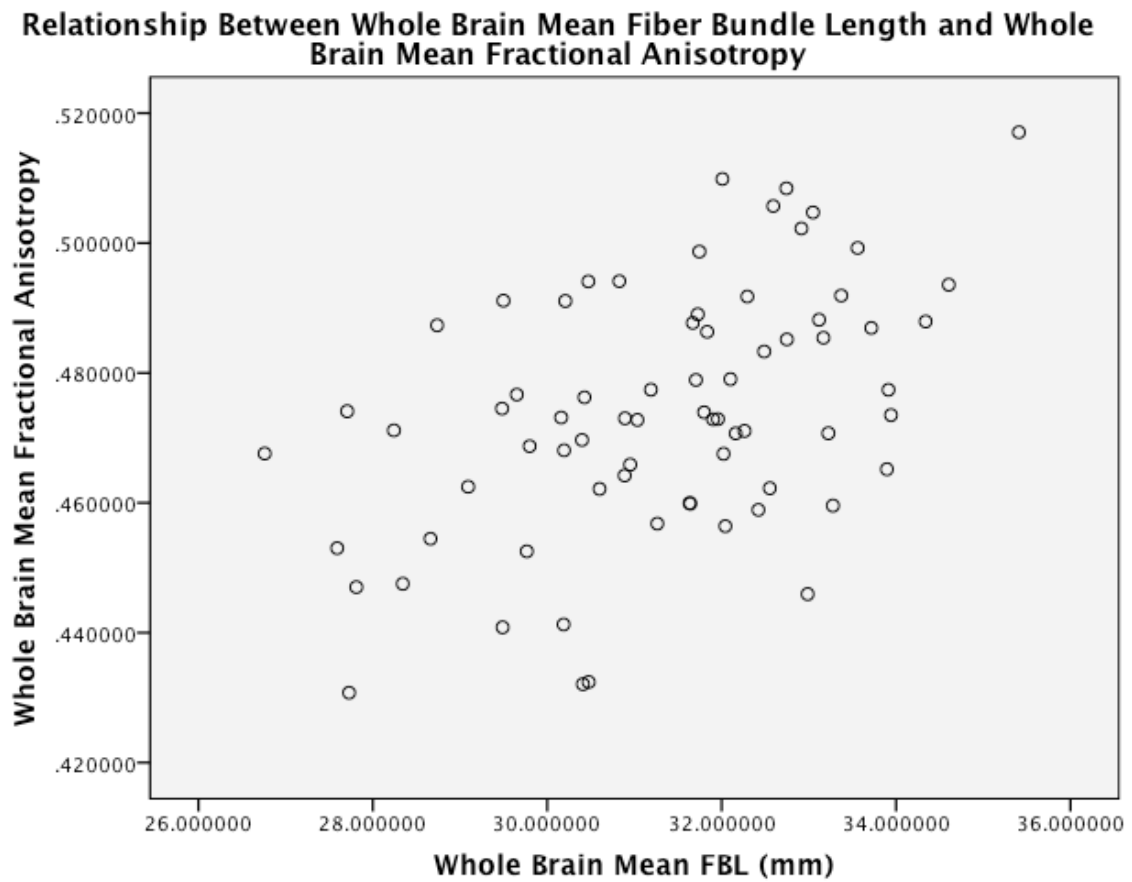
Scatter plot displaying the relationship between age and total score on the Mini Mental State Exam

Figure e-2. Histograms of (a) Anterior Thalamic Radiation and (b) Cingulum of the Hippocampus, and scatter plots of (c) Anterior Thalamic Radiation, (d) Cingulum of the Hippocampus, (e) Inferior Fronto-Occipital Fasciculus and (f) Cingulum of the Cingulate Cortex.



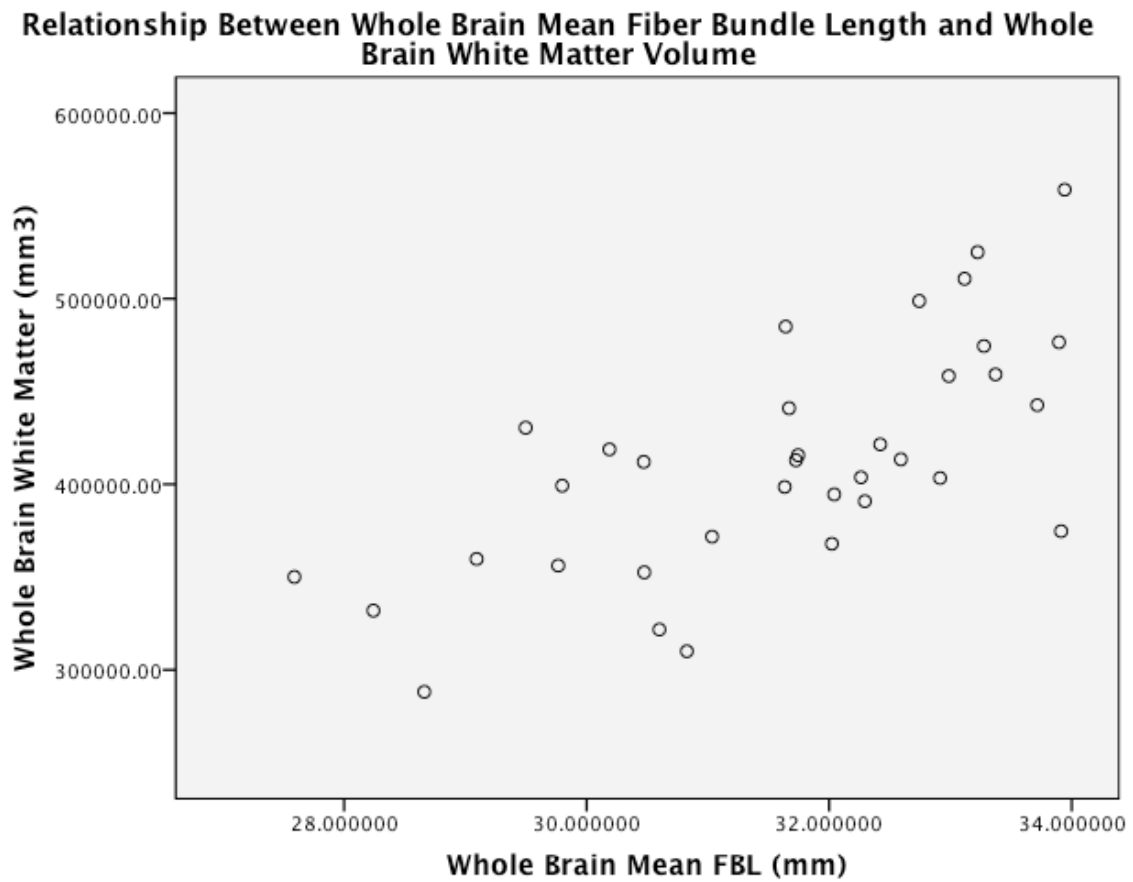
Solid circle dots are the subjects analyzed, the red triangles are the three subjects excluded. For (e) Inferior Fronto-Occipital Fasciculus, one outlier had a FBL value of 222.6 ( $> 3$  SD from the mean) with age 62, where the analyzed 60 subjects had an average of 163.8 with standard deviation 15.81. For (f) Cingulum of the Cingulate Cortex, one outlier had a FBL value of 154.6 ( $> 3$  SD away from the mean) with age 69, where the analyzed 60 subjects had an average of 121.1 with standard deviation 9.21. A third subject was excluded due to our MMSE inclusion criterion.

Figure e-3. Relationship between whole brain mean fiber bundle length and whole brain mean fractional anisotropy



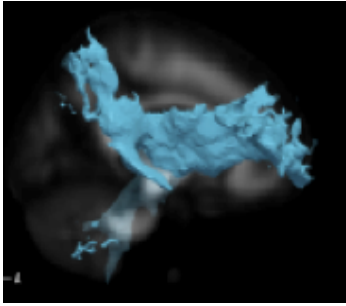
Scatter plot displaying the relationship between whole brain mean fiber bundle length and whole brain mean fractional anisotropy

Figure e-4. Relationship between whole brain mean fiber bundle length and whole brain white matter volume

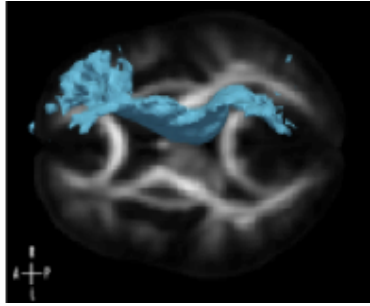


Scatter plot displaying the relationship between whole brain mean fiber bundle length and whole brain mean white matter volume

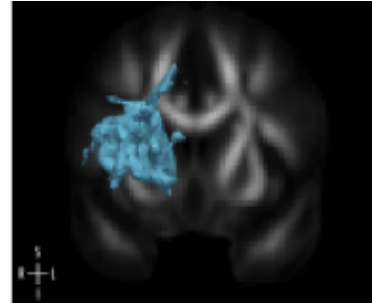
Figure e-5. Visualization of the JHU atlas region-of-interest for the anterior thalamic radiation. A smoothed boundary surface representation is shown.



Left side view



Top side view



Front side view

Figure e-6. Population variability of the right anterior thalamic radiation in six randomly selected subjects

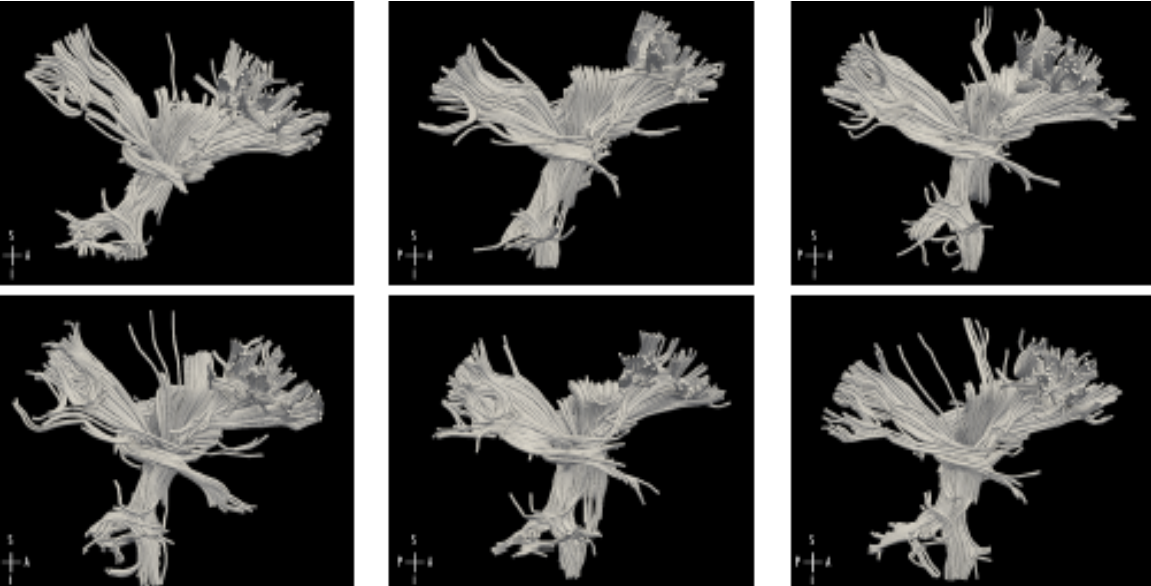


Figure e-7. Example of the right hemisphere anterior thalamic radiation extracted in a single subject. Each voxel is colored by the number of curves passing through it.

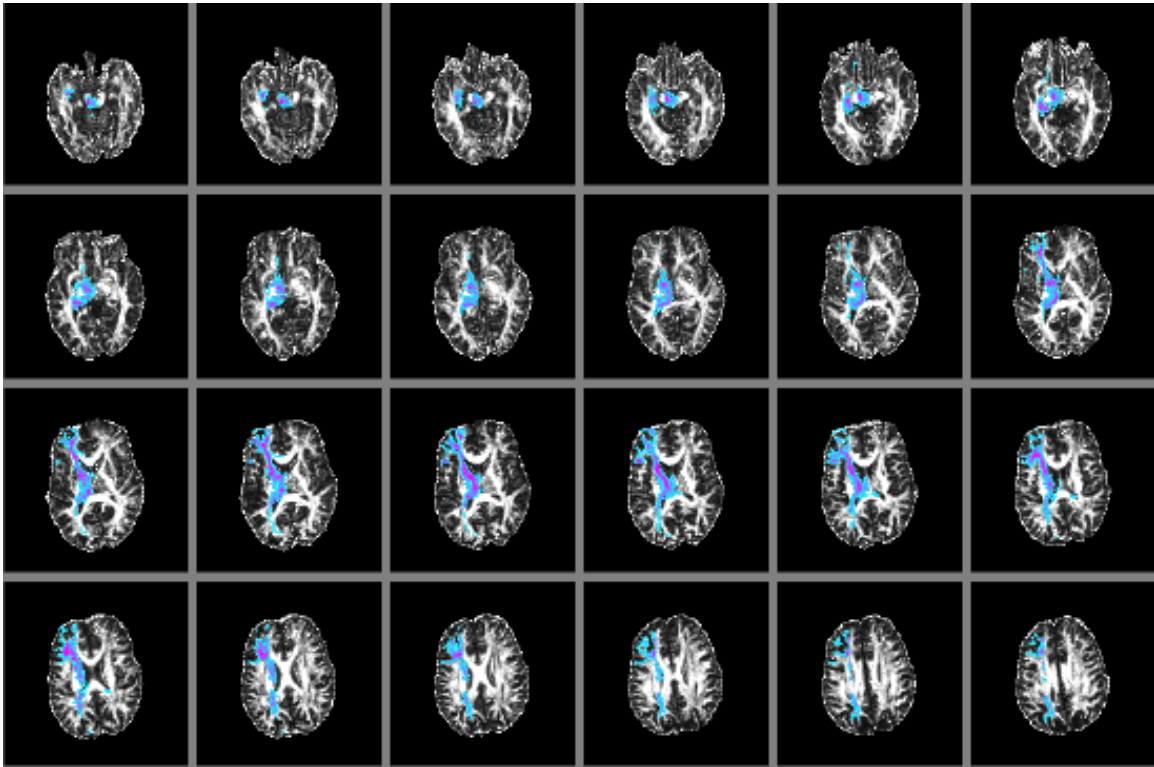
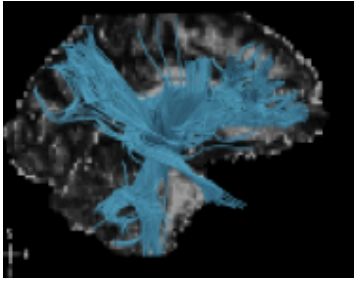
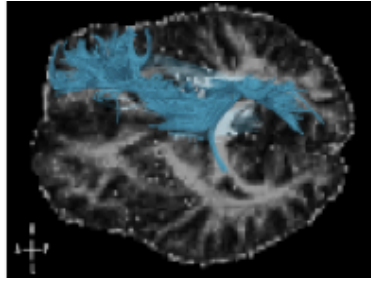


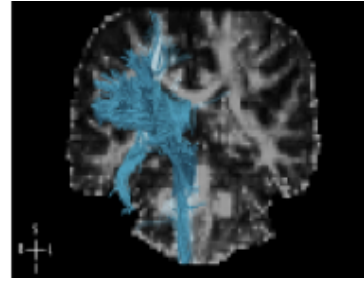
Figure e-8. Visualization of the JHU atlas region-of-interest for the anterior thalamic radiation. A smoothed boundary surface representation is shown.



Left side view



Top side view



Front side view



Table e-1. Univariate analyses of age and fiber bundle length (mm) on all 63 subjects

	Coefficient	SE	T	<i>p</i> value
<b>Age</b>				
Uncinate Fasciculus	-0.057	0.158	-0.364	0.717
Inferior Fronto- Occipital Fasciculus	-0.461	0.269	-1.716	0.091
Inferior Longitudinal Fasciculus	-0.102	0.141	-0.719	0.475
Superior Longitudinal Fasciculus	0.087	0.097	0.889	0.378
Anterior Thalamic Radiation	-0.627	0.198	-3.161	0.002*
Cingulum of the Cingulate Cortex	0.161	0.156	1.035	0.304
Cingulum of the Hippocampus	-0.250	0.116	-2.160	0.035*
Corticospinal Tract	-0.096	0.252	-0.382	0.703

We applied the same statistical analysis in the manuscript to all 63 subjects, including the three subjects excluded. The regression results are similar to the results in the main text, and Anterior Thalamic Radiation is significant ( $p < 0.05$ , Bonferroni corrected) while Cingulum of the Hippocampus is significant before correction.

Table e-2. Univariate analyses of age and fractional anisotropy

	Coefficient	SE	T	<i>p</i> value	Bonferroni p-value	FDR <i>p</i> value
<b>Age</b>						
Uncinate Fasciculus						
Right	-9.80E-02	4.51E-02	-2.172	0.034*	0.544	0.091
Left	-8.36E-03	3.59E-02	-0.233	0.816	1.000	0.930
Inferior Fronto-Occipital Fasciculus						
Right	-2.07E-01	7.34E-02	-2.818	0.007*	0.112	0.091
Left	1.72E-01	7.65E-02	-2.246	0.029*	0.464	0.091
Inferior Longitudinal Fasciculus						
Right	-7.96E-02	4.68E-02	-1.699	0.095	1.000	0.217
Left	-9.84E-02	4.51E-02	-2.182	0.033*	0.528	0.091
Superior Longitudinal Fasciculus						
Right	-1.54E-02	2.61E-02	-0.591	0.557	1.000	0.742
Left	3.19E-03	3.06E-02	0.104	0.918	1.000	0.930
Anterior Thalamic Radiation						
Right	-1.46E-01	5.74E-02	-2.540	0.014*	0.224	0.091
Left	-1.33E-01	5.69E-02	-2.348	0.022*	0.352	0.091
Cingulum of the Cingulate Cortex						
Right	-7.80E-03	4.98E-02	-0.157	0.876	1.000	0.930
Left	-5.50E-03	6.21E-02	-0.089	0.930	1.000	0.930
Cingulum of the Hippocampus						
Right	-5.17E-02	4.12E-02	-1.256	0.214	1.000	0.388
Left	-4.04E-04	3.25E-04	-1.245	0.218	1.000	0.388
Corticospinal Tract						
Right	-7.02E-02	7.88E-02	-0.891	0.377	1.000	0.603
Left	6.51E-02	8.12E-02	0.802	0.426	1.000	0.620