Online Supplemental Material: Image Acquisition and Data Analysis

Image Acquisition

DKI datasets were acquired with a 3 Tesla Magnetom Verio MRI scanner (Siemens Medical, Erlangen, Germany) using a vendor-supplied, single-shot diffusion-weighted EPI sequence with a twice-refocused spin echo (1) and a 12-channel head coil. To characterize non-Gaussian diffusion, the protocol included 3 diffusion weightings of b = 0, 1000, and 2000 s/mm^2, with 30 isotropically distributed diffusion encoding directions and a total of 10 images with no diffusion weighting (b=0). Other acquisition parameters were: repetition time (TR) = 8500 ms, echo time (TE) = 98 ms, voxel dimensions = 3.0×3.0×3.0 mm^3, matrix size × number of slices = 74×74×40, and a parallel imaging factor = 2 with no partial Fourier encoding. The acquisition time for this protocol was 9 minutes and 12 seconds. Structural imaging was also performed for each participant using a sagittal T1-weighted magnetization-prepared rapid acquisition gradient echo (MPRAGE) image sequence, with TR/TE = 2250/4.18 ms, inversion time = 900 ms, voxel dimensions = 1.0×1.0×1.0 mm^3, and matrix size × number of slices = 256×256×176.

Image Analysis

DKI analysis included the estimation of the diffusion and kurtosis tensors (2) and subsequent DKI-derived tractography (3,4) and was performed using diffusional kurtosis estimator (DKE) software (https://www.nitrc.org/projects/dke/). Quantitative tensor analyses included characterization of mean diffusivity (MD) and FA from the diffusion tensor and corresponding mean kurtosis (MK) (2) and kurtosis fractional anisotropy (KFA) (5). DKI was incorporated into the AFQ image processing pipeline

(https://github.com/jyeatman/AFQ) using fully automated in-house scripts written in MATLAB (MathWorks, Natick, MA, USA).

AFQ utilizes diffusion tractography data and performs a series of automated steps to identify and segment specific WM fiber bundles and isolate the core of each tract (6). Fiber bundles are selected by specifying regions of interest (ROIs) chosen from a WM template, which are applied to define the extremities of each tract. Once the core of a tract is identified, AFQ interpolates a fixed number of sections along the tract and estimates the diffusion and kurtosis tensors at every section, enabling reconstruction of all tensor-derived metrics. By using each subject's unique tractography data, this approach can potentially accommodate more inter-subject variability in tract locations than alternative voxel-based methods. Tract profiles were excluded in cases where AFQ did not identify individual tracts (7).

Beyond the conventional AFQ pipeline, we implemented in-house algorithms to automatically segment the fimbria-fornix (FF) WM fibers, in addition to the standard fiber groups used by AFQ. This was done as hippocampal sclerosis is a common pathological feature of TLE and the FF represents a major conduit of information to and from the hippocampus. Additional WM pathways were selected based on their hypothesized role in TLE, and include the parahippocampal white matter bundle (PWMB), arcuate fasciculus (AF), inferior longitudinal fasciculus (ILF), cingulum bundle (CB) and uncinate fasciculus (UF).

Tractography

Online Supplemental Material: Image Acquisition and Data Analysis

DKI tractography was performed using the closed-form analytical expression of the kurtosis orientation distribution function derived by Jensen et al. (3) and the image analysis procedures developed by Glenn et al. (4) using the DKE tractography module (https://www.nitrc.org/projects/dke/). Whole brain masks were calculated within AFQ using FSL's brain extraction tool, and DKI-based tractography was performed using the Euler method with an angle cutoff threshold of 35 degrees, a minimum tract length threshold of 20 mm, and 250,000 seed points randomly placed within each subject's brain mask.

Statistical Analysis

Tract profiles were created for each fiber group using AFQ along 100 sections by interpolating the DKI-derived diffusion and kurtosis tensors along each tract and then quantifying the tensor-derived parameters for each section. Each tract was then divided into 5 regions of interest (ROIs), consisting of 20 consecutive sections. The respective along-the-tract diffusion metrics were averaged over each ROI and a two sample t-test was performed to determine the significance of group-wise differences. In all, there were a total of 12 fiber groups × 4 diffusion metrics × 5 regions of interest per fiber group, resulting in 240 total comparisons. Significance levels were corrected for multiple comparisons using the false discovery rate (FDR) procedure (8). To quantify the effect size of the observed changes, the Cohen's d parameter was calculated for each ROI for group-wise differences as well as differences between subjects whose seizures were well-controlled with AEDs and those whose seizures were not well-controlled with AEDs. All group comparisons were unblinded.

Online Supplemental Material: Image Acquisition and Data Analysis

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Online Supplemental Material: Table 1 – Tract Profile Summary Statistics

Fimbria-Fornix

		Left					Right			
Param	**ROI**	**Control**	**Patient**	**Cohen's d**	**p-value**		**Control**	**Patient**	**Cohen's d**	**p-value**
	1	1.81 (0.34)	1.98 (0.46)	-0.423	0.332		1.99 (0.37)	1.98 (0.52)	0.014	0.976
	2	1.91 (0.34)	2.05 (0.40)	-0.378	0.407		1.97 (0.42)	2.04 (0.45)	-0.174	0.744
MD	3	1.22 (0.25)	1.37 (0.39)	-0.453	0.283		1.24 (0.22)	1.30 (0.34)	-0.241	0.631
	4	1.27 (0.18)	1.40 (0.31)	-0.504	0.212		1.28 (0.17)	1.30 (0.23)	-0.117	0.832
	5	1.15 (0.18)	1.23 (0.25)	-0.357	0.426		1.29 (0.28)	1.22 (0.24)	0.286	0.565
	1	0.20 (0.04)	0.19 (0.05)	0.419	0.338		0.19 (0.04)	0.18 (0.05)	0.115	0.829
	2	0.18 (0.05)	0.16 (0.04)	0.317	0.510		0.17 (0.04)	0.16 (0.04)	0.261	0.589
FA	3	0.28 (0.07)	0.26 (0.07)	0.268	0.594		0.28 (0.06)	0.25 (0.06)	0.460	0.276
	4	0.24 (0.04)	0.22 (0.05)	0.343	0.448		0.24 (0.05)	0.23 (0.05)	0.268	0.593
	5	0.21 (0.04)	0.19 (0.07)	0.250	0.619		0.20 (0.05)	0.20 (0.05)	0.110	0.822
	1	0.71 (0.08)	0.66 (0.09)	0.590	0.116		0.68 (0.08)	0.68 (0.10)	0.068	0.920
	2	0.69 (0.08)	0.65 (0.08)	0.435	0.311		0.68 (0.09)	0.65 (0.09)	0.242	0.630
MK	3	0.82 (0.06)	0.77 (0.09)	0.695	0.055		0.83 (0.07)	0.79 (0.09)	0.395	0.388
	4	**0.80 (0.06)**	**0.74 (0.07)**	**0.997**	**< 0.005**	**	0.81 (0.05)	0.78 (0.06)	0.514	0.194
	5	**0.79 (0.05)**	**0.72 (0.07)**	**1.220**	**< 0.005**	**	0.78 (0.06)	0.75 (0.09)	0.447	0.281
	1	0.15 (0.04)	0.16 (0.09)	-0.156	0.772		0.14 (0.04)	0.15 (0.06)	-0.255	0.603
	2	0.13 (0.04)	0.13 (0.04)	0.094	0.877		0.14 (0.04)	0.14 (0.05)	0.051	0.930
KFA	3	0.30 (0.10)	0.27 (0.11)	0.236	0.622		0.28 (0.08)	0.26 (0.08)	0.177	0.745
	4	0.25 (0.06)	0.23 (0.07)	0.241	0.628		0.23 (0.06)	0.24 (0.08)	-0.160	0.765
	5	0.25 (0.07)	0.24 (0.08)	0.052	0.932		0.23 (0.08)	0.23 (0.08)	-0.093	0.882

Parahippocampal White Matter Bundle

		Left					Right			
Param	**ROI**	**Control**	**Patient**	**Cohen's d**	**p-value**		**Control**	**Patient**	**Cohen's d**	**p-value**
	1	1.25 (0.29)	1.30 (0.34)	-0.168	0.753		1.26 (0.28)	1.38 (0.32)	-0.397	0.383
	2	1.23 (0.21)	1.24 (0.24)	-0.066	0.922		1.28 (0.20)	1.34 (0.26)	-0.286	0.571
MD	3	1.18 (0.18)	1.20 (0.25)	-0.091	0.872		1.20 (0.16)	1.21 (0.21)	-0.058	0.929
	4	1.14 (0.18)	1.19 (0.29)	-0.225	0.633		1.08 (0.13)	1.10 (0.18)	-0.138	0.790
	5	1.14 (0.19)	1.23 (0.30)	-0.379	0.400		1.06 (0.15)	1.11 (0.19)	-0.274	0.589
	1	0.18 (0.05)	0.16 (0.03)	0.484	0.229		0.17 (0.05)	0.15 (0.04)	0.362	0.432
	2	0.20 (0.05)	0.18 (0.03)	0.448	0.288		0.18 (0.04)	0.18 (0.04)	0.091	0.874
FA	3	0.20 (0.04)	0.18 (0.03)	0.361	0.420		0.20 (0.04)	0.20 (0.04)	-0.015	0.980
	4	0.18 (0.03)	0.16 (0.04)	0.620	0.092		0.19 (0.04)	0.19 (0.04)	0.087	0.880
	5	0.15 (0.03)	0.13 (0.04)	0.479	0.234		0.15 (0.03)	0.16 (0.04)	-0.014	0.980
	1	0.79 (0.06)	0.75 (0.06)	0.659	0.066		0.80 (0.05)	0.77 (0.06)	0.511	0.205
	2	**0.80 (0.05)**	**0.76 (0.06)**	**0.810**	**0.018**	*	0.82 (0.04)	0.79 (0.05)	0.608	0.108
MK	3	0.79 (0.05)	0.74 (0.08)	0.668	0.064		0.81 (0.04)	0.80 (0.05)	0.311	0.520
	4	0.76 (0.07)	0.72 (0.09)	0.565	0.127		0.76 (0.08)	0.77 (0.08)	-0.196	0.712
	5	**0.75 (0.05)**	**0.70 (0.10)**	**0.708**	**0.045**	*	0.74 (0.09)	0.74 (0.08)	-0.040	0.947
	1	1.26 (0.28)	1.38 (0.32)	-0.397	0.383		0.21 (0.09)	0.20 (0.09)	0.127	0.811
	2	1.28 (0.20)	1.34 (0.26)	-0.286	0.571		0.20 (0.07)	0.21 (0.08)	-0.036	0.949
KFA	3	1.20 (0.16)	1.21 (0.21)	-0.058	0.929		0.24 (0.08)	0.24 (0.08)	-0.090	0.874
	4	1.08 (0.13)	1.10 (0.18)	-0.138	0.790		0.29 (0.11)	0.28 (0.09)	0.058	0.931
	5	1.06 (0.15)	1.11 (0.19)	-0.274	0.589		0.28 (0.10)	0.26 (0.09)	0.200	0.709

Note: ROI locations correspond to those illustrated in Figure 2. Control and Patient values represent mean (± sandard deviation). Statistically significant differences are indicated by bold font and with a single asterisk for $p < 0.05$ and a double asterisk for $p < 0.005$, after correcting for multiple comparisons with FDR.

Online Supplemental Material: Table 1 – Tract Profile Summary Statistics

Arcuate Fasciculus

		Left					Right				
Param	**ROI**	**Control**	**Patient**	**Cohen's d**	**p-value**		**Control**	**Patient**	**Cohen's d**	**p-value**	
	1	0.80 (0.02)	0.80 (0.05)	-0.111	0.821		0.80 (0.03)	0.80 (0.05)	0.026	0.969	
	2	0.82 (0.03)	0.83 (0.05)	-0.237	0.625		0.83 (0.04)	0.83 (0.05)	-0.113	0.826	
MD	3	0.84 (0.03)	0.85 (0.06)	-0.279	0.572		0.85 (0.03)	0.86 (0.06)	-0.170	0.750	
	4	0.86 (0.03)	0.89 (0.06)	-0.444	0.284		0.88 (0.04)	0.89 (0.07)	-0.320	0.490	
	5	0.88 (0.04)	0.89 (0.06)	-0.340	0.445		0.88 (0.04)	0.88 (0.06)	-0.018	0.979	
	1	0.36 (0.05)	0.35 (0.06)	0.173	0.746		0.33 (0.06)	0.33 (0.08)	-0.069	0.923	
	2	0.34 (0.06)	0.33 (0.05)	0.164	0.752		0.33 (0.07)	0.34 (0.06)	-0.123	0.811	
FA	3	0.37 (0.06)	0.36 (0.07)	0.167	0.751		0.38 (0.06)	0.37 (0.05)	0.142	0.793	
	4	**0.31 (0.06)**	**0.28 (0.05)**	**0.763**	**0.026**	*	0.29 (0.06)	0.28 (0.05)	0.029	0.961	
	5	**0.41 (0.06)**	**0.35 (0.04)**	**1.118**	**< 0.005**	**	0.41 (0.06)	0.40 (0.06)	0.145	0.785	
	1	**1.20 (0.06)**	**1.15 (0.08)**	**0.830**	**0.016**	*	1.19 (0.06)	1.14 (0.10)	0.621	0.094	
	2	**1.18 (0.06)**	**1.11 (0.08)**	**0.946**	**< 0.005**	**	**1.16 (0.06)**	**1.10 (0.09)**	**0.726**	**0.038**	*
MK	3	**1.14 (0.05)**	**1.07 (0.08)**	**1.210**	**< 0.005**	**	**1.13 (0.06)**	**1.06 (0.09)**	**0.963**	**< 0.005**	**
	4	**1.11 (0.05)**	**1.03 (0.08)**	**1.360**	**< 0.005**	**	**1.10 (0.06)**	**1.03 (0.09)**	**0.960**	**< 0.005**	**
	5	**1.09 (0.05)**	**1.02 (0.09)**	**0.936**	**< 0.005**	**	**1.08 (0.06)**	**1.03 (0.09)**	**0.746**	**0.031**	*
	1	0.54 (0.04)	0.55 (0.07)	-0.236	0.625		0.52 (0.04)	0.53 (0.08)	-0.263	0.587	
	2	0.53 (0.04)	0.54 (0.07)	-0.225	0.641		0.54 (0.04)	0.56 (0.08)	-0.225	0.638	
KFA	3	0.53 (0.05)	0.53 (0.08)	0.023	0.971		0.52 (0.05)	0.52 (0.07)	0.001	0.997	
	4	0.42 (0.05)	0.39 (0.07)	0.440	0.284		0.37 (0.06)	0.38 (0.07)	-0.162	0.758	
	5	0.45 (0.06)	0.42 (0.07)	0.476	0.236		0.42 (0.06)	0.43 (0.09)	-0.180	0.748	

Inferior Longitudinal Fasciculus

		Left					Right				
Param	**ROI**	**Control**	**Patient**	**Cohen's d**	**p-value**		**Control**	**Patient**	**Cohen's d**	**p-value**	
	1	0.97 (0.10)	1.00 (0.12)	-0.309	0.514		0.96 (0.09)	0.97 (0.13)	-0.112	0.821	
	2	0.96 (0.09)	0.98 (0.08)	-0.288	0.569		0.97 (0.08)	0.98 (0.09)	-0.052	0.932	
MD	3	0.96 (0.06)	1.00 (0.08)	-0.556	0.135		1.00 (0.07)	0.99 (0.09)	0.164	0.756	
	4	0.96 (0.06)	0.99 (0.10)	-0.362	0.422		1.00 (0.07)	0.99 (0.10)	0.180	0.745	
	5	0.99 (0.09)	1.04 (0.18)	-0.375	0.409		0.99 (0.11)	0.98 (0.12)	0.044	0.949	
	1	0.43 (0.10)	0.42 (0.06)	0.136	0.793		0.40 (0.05)	0.39 (0.05)	0.321	0.494	
	2	0.41 (0.08)	0.39 (0.06)	0.287	0.562		0.37 (0.05)	0.37 (0.05)	0.145	0.789	
FA	3	0.33 (0.07)	0.31 (0.06)	0.420	0.328		0.29 (0.06)	0.30 (0.05)	-0.176	0.749	
	4	0.25 (0.06)	0.24 (0.06)	0.260	0.591		0.23 (0.06)	0.22 (0.05)	0.135	0.787	
	5	0.18 (0.07)	0.16 (0.05)	0.370	0.409		0.17 (0.06)	0.16 (0.06)	0.158	0.761	
	1	**0.98 (0.08)**	**0.92 (0.09)**	**0.793**	**0.021**	*	**1.00 (0.06)**	**0.92 (0.09)**	**1.091**	**< 0.005**	**
	2	**0.96 (0.06)**	**0.88 (0.09)**	**0.968**	**< 0.005**	**	**0.96 (0.05)**	**0.90 (0.08)**	**0.902**	**0.007**	*
MK	3	**0.93 (0.06)**	**0.86 (0.09)**	**0.874**	**0.010**	*	0.90 (0.06)	0.86 (0.06)	0.582	0.116	
	4	**0.88 (0.06)**	**0.82 (0.08)**	**0.981**	**< 0.005**	**	**0.87 (0.06)**	**0.82 (0.05)**	**0.812**	**0.018**	*
	5	**0.83 (0.07)**	**0.76 (0.08)**	**1.002**	**< 0.005**	**	**0.83 (0.05)**	**0.76 (0.11)**	**0.782**	**0.023**	*
	1	0.41 (0.10)	0.42 (0.08)	-0.070	0.924		0.38 (0.06)	0.41 (0.09)	-0.379	0.405	
	2	0.39 (0.08)	0.39 (0.09)	-0.018	0.975		0.34 (0.07)	0.37 (0.09)	-0.341	0.445	
KFA	3	0.35 (0.08)	0.34 (0.08)	0.138	0.798		0.28 (0.06)	0.33 (0.09)	-0.663	0.065	
	4	0.28 (0.07)	0.29 (0.09)	-0.057	0.925		0.25 (0.05)	0.27 (0.07)	-0.352	0.431	
	5	0.22 (0.09)	0.22 (0.09)	0.076	0.907		0.22 (0.08)	0.24 (0.11)	-0.174	0.748	

Note: ROI locations correspond to those illustrated in Figure 2. Control and Patient values represent mean (± sandard deviation). Statistically significant differences are indicated by bold font and with a single asterisk for $p < 0.05$ and a double asterisk for $p < 0.005$, after correcting for multiple comparisons with FDR.

Online Supplemental Material: Table 1 – Tract Profile Summary Statistics

Cingulum Bundle

		Left					Right				
Param	**ROI**	**Control**	**Patient**	**Cohen's d**	**p-value**		**Control**	**Patient**	**Cohen's d**	**p-value**	
MD	1	0.93 (0.05)	0.94 (0.06)	-0.136	0.797		0.91 (0.05)	0.95 (0.08)	-0.591	0.112	
	2	0.89 (0.05)	0.91 (0.08)	-0.303	0.525		0.89 (0.05)	0.91 (0.08)	-0.266	0.589	
	3	0.86 (0.04)	0.88 (0.07)	-0.297	0.541		0.88 (0.06)	0.90 (0.08)	-0.205	0.679	
	4	0.87 (0.04)	0.88 (0.08)	-0.288	0.564		0.89 (0.06)	0.89 (0.10)	-0.059	0.928	
	5	0.85 (0.03)	0.87 (0.07)	-0.354	0.429		0.86 (0.04)	0.88 (0.11)	-0.210	0.668	
FA	1	0.20 (0.05)	0.19 (0.05)	0.155	0.770		0.19 (0.04)	0.17 (0.03)	0.648	0.072	
	2	0.26 (0.06)	0.26 (0.07)	0.003	0.996		0.23 (0.04)	0.22 (0.05)	0.257	0.595	
	3	0.31 (0.05)	0.32 (0.07)	-0.133	0.789		0.27 (0.05)	0.27 (0.07)	-0.040	0.951	
	4	0.33 (0.05)	0.33 (0.07)	0.068	0.924		0.27 (0.05)	0.28 (0.07)	-0.191	0.714	
	5	0.29 (0.05)	0.28 (0.06)	0.141	0.793		0.24 (0.06)	0.25 (0.07)	-0.136	0.801	
MK	1	0.87 (0.06)	0.84 (0.07)	0.374	0.407		**0.87 (0.06)**	**0.82 (0.07)**	**0.696**	**0.050**	*
	2	0.89 (0.07)	0.86 (0.09)	0.355	0.431		0.88 (0.07)	0.85 (0.09)	0.392	0.383	
	3	0.94 (0.06)	0.89 (0.11)	0.588	0.112		0.90 (0.07)	0.87 (0.11)	0.368	0.409	
	4	0.94 (0.07)	0.90 (0.10)	0.551	0.139		0.91 (0.06)	0.87 (0.09)	0.518	0.184	
	5	0.93 (0.06)	0.88 (0.10)	0.614	0.095		0.90 (0.05)	0.87 (0.10)	0.448	0.284	
KFA	1	0.41 (0.07)	0.40 (0.09)	0.152	0.771		0.40 (0.07)	0.36 (0.07)	0.533	0.163	
	2	0.51 (0.08)	0.50 (0.11)	0.024	0.970		0.47 (0.07)	0.45 (0.11)	0.234	0.622	
	3	0.56 (0.07)	0.57 (0.11)	-0.078	0.904		0.52 (0.08)	0.51 (0.11)	0.115	0.832	
	4	0.53 (0.06)	0.53 (0.11)	0.003	0.998		0.47 (0.08)	0.49 (0.12)	-0.181	0.749	
	5	0.41 (0.06)	0.44 (0.11)	-0.349	0.430		0.40 (0.08)	0.41 (0.12)	-0.114	0.828	

Uncinate Fasciculus

		Left					Right				
Param	**ROI**	**Control**	**Patient**	**Cohen's d**	**p-value**		**Control**	**Patient**	**Cohen's d**	**p-value**	
MD	1	0.96 (0.08)	0.97 (0.14)	-0.023	0.970		0.93 (0.12)	0.94 (0.10)	-0.135	0.806	
	2	0.96 (0.16)	0.96 (0.17)	-0.007	0.990		0.95 (0.17)	0.94 (0.10)	0.066	0.919	
	3	1.03 (0.24)	1.02 (0.19)	0.042	0.945		0.99 (0.22)	0.98 (0.09)	0.068	0.923	
	4	1.04 (0.23)	1.07 (0.27)	-0.100	0.875		1.01 (0.26)	1.03 (0.13)	-0.067	0.920	
	5	1.05 (0.18)	1.10 (0.26)	-0.239	0.637		1.03 (0.26)	1.13 (0.28)	-0.366	0.432	
FA	1	0.25 (0.09)	0.26 (0.08)	-0.039	0.951		0.29 (0.09)	0.27 (0.09)	0.288	0.578	
	2	0.27 (0.08)	0.27 (0.09)	-0.038	0.946		0.28 (0.08)	0.26 (0.07)	0.236	0.633	
	3	0.26 (0.09)	0.26 (0.09)	-0.044	0.952		0.28 (0.08)	0.26 (0.08)	0.207	0.706	
	4	0.25 (0.08)	0.23 (0.08)	0.241	0.635		0.27 (0.08)	0.24 (0.07)	0.430	0.348	
	5	0.20 (0.07)	0.18 (0.07)	0.302	0.572		0.24 (0.06)	0.20 (0.08)	0.608	0.119	
MK	1	0.78 (0.05)	0.74 (0.07)	0.622	0.123		0.77 (0.06)	0.75 (0.10)	0.248	0.623	
	2	0.80 (0.06)	0.76 (0.10)	0.533	0.222		0.78 (0.06)	0.76 (0.09)	0.255	0.632	
	3	0.80 (0.05)	0.76 (0.09)	0.654	0.109		0.79 (0.08)	0.77 (0.08)	0.278	0.591	
	4	**0.81 (0.05)**	**0.74 (0.12)**	**0.851**	**0.023**	*	0.80 (0.07)	0.77 (0.09)	0.300	0.568	
	5	**0.81 (0.05)**	**0.74 (0.10)**	**0.945**	**0.011**	*	0.81 (0.06)	0.78 (0.08)	0.476	0.286	
KFA	1	0.34 (0.12)	0.36 (0.12)	-0.161	0.784		0.42 (0.13)	0.37 (0.12)	0.404	0.400	
	2	0.33 (0.12)	0.36 (0.13)	-0.297	0.583		0.35 (0.12)	0.32 (0.10)	0.333	0.502	
	3	0.26 (0.11)	0.29 (0.11)	-0.274	0.601		0.29 (0.10)	0.29 (0.11)	-0.045	0.948	
	4	0.26 (0.10)	0.29 (0.13)	-0.259	0.629		0.28 (0.11)	0.27 (0.10)	0.132	0.808	
	5	0.23 (0.08)	0.25 (0.12)	-0.194	0.747		0.26 (0.09)	0.23 (0.09)	0.339	0.498	

Note: ROI locations correspond to those illustrated in Figure 2. Control and Patient values represent mean (± sandard deviation). Statistically significant differences are indicated by bold font and with a single asterisk for $p < 0.05$ and a double asterisk for $p < 0.005$, after correcting for multiple comparisons with FDR.

Online Supplemental Material: Table 2 – Patient Demographic and Clinical Info

Patient Number	Gender	Age (yr)	Age of Epilepsy Onset (yr)	Durration (yr)	Seizure Frequency (per 6 Mo)	MRI Results	Interictal EEG
1	F	57	52	5	3	Normal	Left temporal IEDs
2	F	57	35	22	24	Left HS	Left temporal IEDs
3	F	63	57	6	1	Normal	Left temporal IEDs
4	M	46	3	43	12	Left HS	Left temporal IEDs
5	M	56	30	26	6	Left HS	Left temporal IEDs
6	F	18	3	15	72	Left HS	Left temporal IEDs
7	F	37	33	4	6	Left HS	Left temporal IEDs
8	F	51	50	1	12	Normal	Left temporal IEDs
9	F	23	17	6	6	Left HS	Left and right temporal IEDs
10	M	22	10	12	0.5	Left HS	Left temporal IEDs
11	F	21	20	1	1	Left HS	Left temporal IEDs
12	M	34	15	19	1	Normal	Left temporal IEDs
13	F	58	55	3	1	Left HS	Left temporal IEDs
14	M	20	20	0	0.2	Left HS	Left and right temporal IEDs
15	F	67	66	1	6	Normal	Left temporal IEDs
16	F	62	62	0	0.2	Left HS	Left temporal IEDs
17	F	57	1	56	2	Left HS	Normal
18	F	18	5	13	3	Left HS	Left temporal IEDs
19	F	37	28	9	2	Left HS	Normal
20	F	20	19	1	1	Left HS	Normal
21	F	57	50	7	6	Left HS	Left and right temporal IEDs
22	F	45	33	12	2	Left HS	Normal
23	M	43	0	43	3	Left HS	Normal
24	F	76	30	46	6	Left HS	Left temporal IEDs
25	M	36	17	19	1	Left HS	Normal
26	M	65	59	6	1	Left HS	Normal
27	F	57	2	55	6	Left HS	Left temporal IEDs
28	M	45	27	18	2	Left HS	Normal
29	F	27	27	0	0.2	Left HS	Normal
30	F	59	42	17	3	Left HS	Left temporal IEDs
31	F	46	35	11	0.5	Left HS	Left temporal IEDs
32	M	40	37	3	0.2	Left HS	Normal

Note: HS, hippocampal sclerosis; EEG, electroencephalography; IED, interictal epileptiform discharges; in cases where left and right IEDs were noted, left IEDs were greater than right IEDs and signs of unilateral left HS were present on MRI