

Table sup-1. Pearson's correlations between different maps in AD group with age and gender. Abbreviations: CI, confidence interval; MTsat, magnetization transfer saturation; Vt, total volume distribution; R2*, effective transverse relaxation rate; GMvol, gray matter volume.

	Pearson's r	p-value	Lower 95% CI	Upper 95% CI	Fisher's z
Left hippocampus					
MTsat – Age	-0.431	0.035	-0.711	-0.034	-0.461
MTsat - Gender	-0.258	0.224	-0.599	0.163	-0.264
R2* - Age	-0.207	0.332	-0.563	0.215	-0.210
R2* - Gender	-0.085	0.693	-0.472	0.330	-0.085
GMvol - Age	-0.173	0.418	-0.539	0.247	-0.175
GMvol - Gender	-0.591	0.002	-0.803	-0.246	-0.679
Vt -Age	-0.253	0.233	-0.596	0.167	-0.259
Vt - Gender	-0.253	0.232	-0.596	0.167	-0.259
Right hippocampus					
MTsat – Age	-0.399	0.053	-0.691	0.005	-0.422
MTsat - Gender	-0.445	0.029	-0.719	-0.051	-0.479
R2* - Age	-0.166	0.439	-0.534	0.255	-0.167
R2* - Gender	-0.127	0.553	-0.505	0.291	-0.128
GMvol - Age	-0.132	0.540	-0.508	0.287	-0.132
GMvol - Gender	-0.385	0.064	-0.682	0.022	-0.405
Vt -Age	-0.298	0.157	-0.626	0.120	-0.307
Vt - Gender	-0.136	0.526	-0.511	0.283	-0.137
Right para hippocampal					
MTsat – Age	-0.283	0.180	-0.616	0.136	-0.291
MTsat - Gender	-0.394	0.057	-0.688	0.012	-0.416
R2* - Age	0.139	0.517	-0.280	0.514	0.140
R2* - Gender	0.376	0.070	-0.032	0.677	0.396
GMvol - Age	-0.416	0.043	-0.702	-0.015	-0.443
GMvol - Gender	-0.537	0.007	-0.773	-0.171	-0.600
Vt -Age	-0.139	0.517	-0.514	0.280	-0.140
Vt - Gender	-0.122	0.570	-0.501	0.296	-0.123
Left fusiform					
MTsat – Age	-0.352	0.091	-0.662	0.060	-0.368
MTsat - Gender	-0.503	0.012	-0.753	-0.125	-0.553
R2* - Age	0.032	0.883	-0.377	0.430	0.032
R2* - Gender	0.406	0.049	0.004	0.696	0.431
GMvol - Age	-0.207	0.333	-0.563	0.215	-0.210
GMvol - Gender	-0.559	0.004	-0.786	-0.202	-0.632
Vt -Age	-0.139	0.516	-0.514	0.280	-0.140
Vt - Gender	-0.428	0.037	-0.709	-0.029	-0.457
Left temporal					
MTsat – Age	-0.631	< .001	-0.824	-0.305	-0.742
MTsat - Gender	-0.395	0.056	-0.689	0.010	-0.418
R2* - Age	-0.070	0.744	-0.461	0.343	-0.070
R2* - Gender	0.189	0.376	-0.232	0.551	0.192
GMvol - Age	-0.343	0.101	-0.656	0.070	-0.357
GMvol - Gender	-0.239	0.261	-0.586	0.182	-0.244
Vt -Age	-0.448	0.028	-0.721	-0.055	-0.482
Vt - Gender	-0.125	0.562	-0.503	0.294	-0.125

Table sup- 2. Pearson's correlations between different maps in the HC group with age and gender. Abbreviations: CI, confidence interval; MTsat, magnetization transfer saturation; Vt, total volume distribution; R2*, effective transverse relaxation rate; GMvol, gray matter volume.

	Pearson's r	p-value	Lower 95% CI	Upper 95% CI	Fisher's z
Left hippocampus					
MTsat – Age	-0.663	0.002	-0.859	-0.299	-0.798
MTsat - Gender	0.014	0.954	-0.443	0.466	0.014
R2* - Age	-0.266	0.271	-0.643	0.214	-0.273
R2* - Gender	-0.224	0.356	-0.616	0.256	-0.228
GMvol - Age	-0.378	0.111	-0.710	0.092	-0.397
GMvol - Gender	-0.646	0.003	-0.851	-0.272	-0.769
Vt -Age	-0.114	0.642	-0.540	0.359	-0.115
Vt - Gender	0.101	0.680	-0.370	0.531	0.102
Right hippocampus					
MTsat – Age	-0.574	0.010	-0.816	-0.162	-0.654
MTsat - Gender	0.019	0.938	-0.439	0.469	0.019
R2* - Age	-0.243	0.317	-0.628	0.238	-0.248
R2* - Gender	-0.547	0.015	-0.802	-0.124	-0.614
GMvol - Age	-0.709	< .001	-0.880	-0.376	-0.885
GMvol - Gender	-0.401	0.088	-0.724	0.065	-0.425
Vt -Age	-0.163	0.504	-0.575	0.314	-0.165
Vt - Gender	0.055	0.822	-0.409	0.497	0.055
Right para hippocampal					
MTsat – Age	-0.176	0.470	-0.584	0.302	-0.178
MTsat - Gender	-0.168	0.493	-0.578	0.310	-0.169
R2* - Age	-0.207	0.396	-0.604	0.273	-0.210
R2* - Gender	-0.572	0.011	-0.814	-0.159	-0.650
GMvol - Age	-0.530	0.020	-0.793	-0.100	-0.590
GMvol - Gender	-0.501	0.029	-0.778	-0.061	-0.551
Vt -Age	0.013	0.959	-0.444	0.464	0.013
Vt - Gender	0.075	0.760	-0.393	0.512	0.075
Left fusiform					
MTsat – Age	0.094	0.702	-0.376	0.526	0.094
MTsat - Gender	-0.318	0.184	-0.675	0.159	-0.330
R2* - Age	0.117	0.633	-0.356	0.542	0.118
R2* - Gender	-0.540	0.017	-0.798	-0.114	-0.604
GMvol - Age	-0.668	0.002	-0.861	-0.306	-0.806
GMvol - Gender	-0.377	0.112	-0.710	0.094	-0.396
Vt -Age	-0.267	0.269	-0.643	0.213	-0.274
Vt - Gender	0.021	0.933	-0.438	0.470	0.021
Left temporal					
MTsat – Age	-0.352	0.091	-0.662	0.060	-0.368
MTsat - Gender	-0.503	0.012	-0.753	-0.125	-0.553
R2* - Age	0.032	0.883	-0.377	0.430	0.032
R2* - Gender	0.406	0.049	0.004	0.696	0.431
GMvol - Age	-0.207	0.333	-0.563	0.215	-0.210
GMvol - Gender	-0.559	0.004	-0.786	-0.202	-0.632
Vt -Age	-0.139	0.516	-0.514	0.280	-0.140
Vt - Gender	-0.428	0.037	-0.709	-0.029	-0.457

Table sup-3. Pearson's correlations between different maps in HC group. Abbreviations: CI, confidence interval; MTsat, magnetization transfer saturation; Vt, total volume distribution; R2*, effective transverse relaxation rate, GMvol, gray matter volume.

	Pearson's r	p-value	Lower 95% CI	Upper 95% CI	Fisher's z	VIF
Left hippocampus						
MTsat – R2*	-0.031	0.899	-0.479	0.429	-0.031	0.999
MTsat - GMvol	-0.082	0.738	-0.517	0.386	-0.082	0.993
MTsat - Vt	0.183	0.453	-0.296	0.588	0.185	1.035
R2* - GMvol	0.538*	0.018	0.110	0.797	0.601	1.407
R2* - Vt	0.253	0.297	-0.228	0.634	0.258	1.068
GMvol - Vt	-0.135	0.582	-0.555	0.340	-0.136	0.982
Right hippocampus						
MTsat – R2*	0.144	0.556	-0.332	0.562	0.145	0.979
MTsat - GMvol	0.284	0.238	-0.195	0.654	0.292	0.919
MTsat - Vt	0.300	0.213	-0.179	0.664	0.309	0.910
R2* - GMvol	0.193	0.427	-0.286	0.595	0.196	0.963
R2* - Vt	0.250	0.302	-0.231	0.632	0.255	0.937
GMvol - Vt	-0.022	0.929	-0.472	0.437	-0.022	0.999
Right para hippocampal						
MTsat – R2*	0.324	0.175	-0.152	0.679	0.337	0.895
MTsat - GMvol	0.070	0.775	-0.397	0.508	0.070	0.995
MTsat - Vt	0.170	0.486	-0.308	0.580	0.172	0.971
R2* - GMvol	0.383	0.106	-0.086	0.713	0.404	0.853
R2* - Vt	0.029	0.907	-0.431	0.477	0.029	0.999
GMvol - Vt	0.128	0.601	-0.346	0.550	0.129	0.984
Left fusiform						
MTsat – R2*	0.471	0.042	0.022	0.762	0.512	0.778
MTsat - GMvol	-0.180	0.462	-0.586	0.299	-0.182	0.968
MTsat - Vt	-0.243	0.317	-0.628	0.238	-0.247	0.941
R2* - GMvol	-0.190	0.436	-0.593	0.289	-0.192	0.964
R2* - Vt	-0.215	0.376	-0.610	0.265	-0.219	0.954
GMvol - Vt	0.429	0.067	-0.031	0.739	0.459	0.816
Left temporal						
MTsat – R2*	0.361	0.129	-0.111	0.700	0.378	0.870
MTsat - GMvol	0.144	0.557	-0.332	0.561	0.145	0.979
MTsat - Vt	-0.032	0.895	-0.480	0.428	-0.032	0.999
R2* - GMvol	0.752***	< .001	0.453	0.899	0.978	0.434
R2* - Vt	0.307	0.201	-0.171	0.668	0.317	0.906
GMvol - Vt	0.151	0.536	-0.325	0.567	0.152	0.977

Table sup-4. Fisher z-transformation test for correlation coefficients between the HC and AD groups. There is no significant correlation between the coefficients of the groups, and therefore the homogeneity assumption holds for the multivariate model. Abbreviations: MTsat, magnetization transfer saturation; Vt, total volume distribution; R2*, effective transverse relaxation rate; GMvol, gray matter volume; diff, the difference between the Fisher's z of group HC and AD.

	Group AD		Group HC		Fisher's z diff.	p-value of diff.
	Pearson's r	Fisher's z	Pearson's r	Fisher's z		
Left hippocampus						
MTsat – Age	-0.431	-0.461	-0.663	-0.798	0.337	0.736
MTsat - Gender	-0.258	-0.264	0.014	0.014	-0.278	0.781
R2* - Age	-0.207	-0.210	-0.266	-0.273	0.063	0.95
R2* - Gender	-0.085	-0.085	-0.224	-0.228	0.143	0.886
GMvol - Age	-0.173	-0.175	-0.378	-0.397	0.222	0.824
GMvol - Gender	-0.591	-0.679	-0.646	-0.769	0.09	0.929
Vt -Age	-0.253	-0.259	-0.114	-0.115	-0.144	0.885
Vt - Gender	-0.253	-0.259	0.101	0.102	-0.36	0.719
Right hippocampus						
MTsat – Age	-0.399	-0.422	-0.574	-0.654	0.231	0.817
MTsat - Gender	-0.445	-0.479	0.019	0.019	-0.498	0.618
R2* - Age	-0.166	-0.167	-0.243	-0.248	0.08	0.936
R2* - Gender	-0.127	-0.128	-0.547	-0.614	0.486	0.627
GMvol - Age	-0.132	-0.132	-0.709	-0.885	0.752	0.452
GMvol - Gender	-0.385	-0.405	-0.401	-0.425	0.02	0.984
Vt -Age	-0.298	-0.307	-0.163	-0.165	-0.143	0.886
Vt - Gender	-0.136	-0.137	0.055	0.055	-0.192	0.847
Right para hippocampal						
MTsat – Age	-0.283	-0.291	-0.176	-0.178	-0.113	0.91
MTsat - Gender	-0.394	-0.416	-0.168	-0.169	-0.247	0.805
R2* - Age	0.139	0.140	-0.207	-0.210	0.349	0.727
R2* - Gender	0.376	0.396	-0.572	-0.650	1.046	0.296
GMvol - Age	-0.416	-0.443	-0.530	-0.590	0.147	0.883
GMvol - Gender	-0.537	-0.600	-0.501	-0.551	-0.049	0.961
Vt -Age	-0.139	-0.140	0.013	0.013	-0.153	0.879
Vt - Gender	-0.122	-0.123	0.075	0.075	-0.198	0.843
Left fusiform						
MTsat – Age	-0.352	-0.368	0.094	0.094	-0.462	0.644
MTsat - Gender	-0.503	-0.553	-0.318	-0.330	-0.223	0.823
R2* - Age	0.032	0.032	0.117	0.118	-0.086	0.931
R2* - Gender	0.406	0.431	-0.540	-0.604	1.036	0.300
GMvol - Age	-0.207	-0.210	-0.668	-0.806	0.597	0.551
GMvol - Gender	-0.559	-0.632	-0.377	-0.396	-0.236	0.814
Vt -Age	-0.139	-0.140	-0.267	-0.274	0.133	0.894
Vt - Gender	-0.428	-0.457	0.021	0.021	-0.478	0.633
Left temporal						
MTsat – Age	-0.631	-0.742	-0.352	-0.368	-0.142	0.887
MTsat - Gender	-0.395	-0.418	-0.503	-0.553	-0.198	0.843
R2* - Age	-0.070	-0.070	0.032	0.032	0.255	0.799
R2* - Gender	0.189	0.192	0.406	0.431	0.366	0.714
GMvol - Age	-0.343	-0.357	-0.207	-0.210	0.121	0.904
GMvol - Gender	-0.239	-0.244	-0.559	-0.632	-0.003	0.998
Vt -Age	-0.448	-0.482	-0.139	-0.140	-0.338	0.735
Vt - Gender	-0.125	-0.125	-0.428	-0.457	-0.35	0.726