



**Table S1.** Association analyses of MRI structural metrics with memory K scores for controls and PD patients .

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<b>a-1. Controls (N=22)</b>								
<i>Correlation coefficient R</i>								
<i>(p-value)</i>								
	Delayed Memory			Working Memory				
	Low-Load	Low-Load with Distrac- tor	High-Load	Memory Load 2	Memory Load 3	Memory Load 4	Memory Load 5	Memory Load 6
Areas related to the ventral attentional system								
L. inferior Frontal-Opercular	0.372 (0.107)	-0.017 (0.944)	-0.062 (0.794)	<b>0.481</b> <b>(0.032)</b>	0.208 (0.380)	0.314 (0.178)	0.022 (0.928)	0.067 (0.780)
L. Inferior Frontal-Triangular	0.222 (0.348)	-0.177 (0.456)	0.122 (0.607)	0.440 (0.052)	0.362 (0.117)	0.365 (0.114)	0.025 (0.916)	0.123 (0.606)
L. middle Frontal Gyrus	0.254 (0.279)	-0.34 (0.887)	0.-99 (0.679)	0.076 (0.752)	-0.084 (0.725)	0.052 (0.828)	-0.099 (0.677)	0.190 (0.423)
L. Angular Gyrus	0.190 (0.422)	0.068 (0.776)	0.258 (0.271)	-0.072 (0.762)	-0.049 (0.838)	-0.013 (0.955)	0.110 (0.644)	0.306 (0.190)
L. Supra-marginal gyrus	0.149 (0.531)	-0.094 (0.693)	-0.011 (0.964)	0.064 (0.790)	-0.119 (0.618)	0.025 (0.918)	-0.094 (0.693)	-0.079 (0.740)
L. superior Temporal gyrus	-0.144 (0.546)	-0.299 (0.201)	-0.311 (0.181)	<b>-0.448</b> <b>(0.048)</b>	-0.359 (0.120)	-0.383 (0.095)	-0.121 (0.613)	-0.009 (0.969)
Areas related to the dorsal attentional system and working memory storage capacity								
L. superior Frontal gyrus	<b>0.466</b> <b>(0.038)</b>	0.148 (0.532)	0.070 (0.770)	0.088 (0.711)	0.160 (0.499)	0.221 (0.350)	0.107 (0.653)	<b>0.460</b> <b>(0.041)</b>
L. superior Parietal Gyrus	0.292 (0.212)	0.098 (0.680)	0.020 (0.935)	-0.071 (0.765)	0.021 (0.930)	-0.008 (0.975)	-0.223 (0.346)	0.050 (0.835)
L. Intra-parietal Sulcus	0.346 (0.135)	0.133 (0.577)	-0.052 (0.829)	-0.214 (0.364)	0.004 (0.988)	-0.022 (0.926)	-0.101 (0.673)	0.092 (0.701)
Areas related to episodic memory								
L. Entorhinal Cortex	-0.021 (0.929)	0.155 (0.514)	0.246 (0.296)	0.315 (0.176)	0.429 (0.059)	0.332 (0.152)	0.265 (0.259)	0.255 (0.278)
L. Para-hippocampal Gyrus	0.027 (0.911)	0.034 (0.887)	0.057 (0.810)	-0.045 (0.851)	-0.138 (0.561)	-0.181 (0.44)	-0.253 (0.283)	-0.351 (0.129)
L. hippocampal volume	0.118 (0.622)	0.275 (0.240)	0.166 (0.483)	0.366 (0.113)	0.155 (0.514)	0.350 (0.131)	0.183 (0.441)	0.030 (0.900)

a-2. Controls (N=22)								
Correlation coefficient R								
(p-value)								
	Delayed Memory			Working Memory				
	Low-Load	Low-Load with Distractor	High-Load	Memory Load 2	Memory Load 3	Memory Load 4	Memory Load 5	Memory Load 6
Areas related to the ventral attentional system								
R. inferior Frontal-Opercular	0.224 (0.343)	0.109 (0.648)	0.104 (0.663)	0.198 (0.403)	-0.088 (0.712)	0.123 (0.605)	-0.140 (0.556)	-0.052 (0.829)
R. Inferior Frontal-Triangular	0.327 (0.160)	0.054 (0.823)	-0.042 (0.860)	-0.218 (0.355)	-0.098 (0.680)	-0.180 (0.448)	-0.249 (0.289)	-0.084 (0.726)
R. middle Frontal Gyrus	0.397 (0.083)	0.239 (0.311)	0.242 (0.303)	-0.045 (0.850)	0.054 (0.820)	0.191 (0.421)	0.085 (0.722)	0.256 (0.277)
R. Angular Gyrus	0.084 (0.725)	-0.041 (0.864)	-0.028 (0.906)	-0.116 (0.627)	0.048 (0.840)	-0.070 (0.770)	0.092 (0.701)	0.190 (0.422)
R. Supra-marginal gyrus	0.319 (0.171)	0.101 (0.672)	-0.117 (0.623)	-0.232 (0.325)	-0.075 (0.755)	-0.264 (0.261)	-0.320 (0.169)	-0.105 (0.659)
R. superior Temporal gyrus	0.281 (0.231)	0.051 (0.831)	-0.005 (0.982)	-0.235 (0.319)	-0.3005 (0.198)	-0.253 (0.2883)	-0.328 (0.158)	-0.155 (0.515)
Areas related to the dorsal attentional system and working memory storage capacity								
R. superior Frontal gyrus	0.324 (0.164)	0.108 (0.649)	0.034 (0.886)	0.007 (0.975)	0.121 (0.613)	0.109 (0.648)	0.235 (0.318)	<b>0.512</b> <b>(0.021)</b>
R. superior Parietal Gyrus	0.211 (0.371)	0.096 (0.688)	0.115 (0.628)	-0.161 (0.498)	0.102 (0.669)	-0.080 (0.738)	0.037 (0.876)	0.276 (0.239)
R. Intra-parietal Sulcus	0.151 (0.525)	0.024 (0.920)	0.010 (0.965)	-0.232 (0.326)	-0.055 (0.818)	-0.129 (0.587)	0.087 (0.717)	0.232 (0.325)
Areas related to episodic memory								
R. Entorhinal Cortex	0.260 (0.268)	0.058 (0.809)	0.320 (0.170)	0.249 (0.290)	0.098 (0.683)	0.261 (0.266)	0.006 (0.982)	0.238 (0.313)
R. Para-hippocampal Gyrus	0.068 (0.775)	0.030 (0.899)	0.024 (0.922)	-0.124 (0.601)	-0.286 (0.221)	-0.145 (0.543)	-0.068 (0.774)	-0.265 (0.258)
R. hippocampal volume	0.061 (0.798)	0.144 (0.544)	0.061 (0.798)	0.279 (0.234)	-0.020 (0.934)	0.255 (0.277)	0.114 (0.632)	-0.063 (0.792)

<b>b-1. PD Patients (N=19)</b>								
<i>Correlation coefficient R</i>								
<i>(p-value)</i>								
Delayed Memory				Working Memory				
	Low-Load	Low-Load with Distractor	High-Load	Memory Load 2	Memory Load 3	Memory Load 4	Memory Load 5	Memory Load 6
Areas related to the ventral attentional system								
L. inferior Frontal-Opercular	0.237 (0.360)	0.330 (0.196)	0.255 (0.322)	<b>0.640*</b> <b>(0.006)</b>	<b>0.546</b> <b>(0.024)</b>	<b>0.505</b> <b>(0.039)</b>	0.293 (0.254)	<b>0.487</b> <b>(0.047)</b>
L. Inferior Frontal-Triangular	0.206 (0.427)	0.195 (0.453)	0.019 (0.941)	<b>0.582</b> <b>(0.014)</b>	<b>0.489</b> <b>(0.046)</b>	0.429 (0.086)	0.173 (0.506)	0.212 (0.414)
L. middle Frontal Gyrus	-0.219 (0.398)	-0.259 (0.315)	0.133 (0.610)	0.125 (0.634)	0.170 (0.513)	0.162 (0.534)	-0.050 (0.848)	0.475 (0.054)
L. Angular Gyrus	0.046 (0.861)	0.161 (0.538)	0.258 (0.318)	0.215 (0.408)	0.284 (0.269)	0.023 (0.930)	-0.025 (0.923)	0.256 (0.322)
L. Supra-marginal gyrus	0.263 (0.309)	0.232 (0.370)	0.414 (0.099)	0.466 (0.060)	0.431 (0.084)	0.208 (0.423)	0.162 (0.535)	<b>0.679*</b> <b>(0.003)</b>
L. superior Temporal Gyrus	<b>0.493</b> <b>(0.044)</b>	<b>0.563</b> <b>(0.019)</b>	0.359 (0.157)	<b>0.604*</b> <b>(0.010)</b>	<b>0.575</b> <b>(0.016)</b>	<b>0.714*</b> <b>(0.001)</b>	<b>0.594</b> <b>(0.012)</b>	<b>0.595</b> <b>(0.012)</b>
Areas related to the dorsal attentional system and working memory storage capacity								
L. superior Frontal gyrus	-0.112 (0.668)	-0.215 (0.407)	0.115 (0.660)	0.134 (0.607)	0.203 (0.434)	0.010 (0.969)	-0.086 (0.744)	-0.093 (0.724)
L. superior Parietal Gyrus	0.188 (0.469)	0.037 (0.887)	0.165 (0.526)	0.417 (0.096)	0.464 (0.061)	0.271 (0.293)	0.307 (0.231)	0.355 (0.162)
L. Intra-parietal Sulcus	0.359 (0.157)	0.139 (0.596)	0.315 (0.219)	0.325 (0.203)	<b>0.568</b> <b>(0.017)</b>	0.211 (0.417)	0.282 (0.274)	0.346 (0.174)
Areas related to episodic memory								
L. Entorhinal Cortex	0.012 (0.965)	0.156 (0.550)	-0.215 (0.408)	0.065 (0.804)	-0.197 (0.448)	-0.062 (0.812)	-0.038 (0.885)	-0.170 (0.515)
L. Para-hippocampal Gyrus	0.156 (0.549)	0.168 (0.520)	0.363 (0.152)	-0.107 (0.683)	0.217 (0.403)	0.014 (0.958)	-0.112 (0.669)	0.391 (0.121)
L. hippocampal volume	-0.099 (0.704)	-0.195 (0.453)	-0.246 (0.342)	0.246 (0.342)	0.098 (0.708)	-0.052 (0.842)	0.021 (0.936)	-0.048 (0.856)
<b>b-2. PD Patients (N=19)</b>								
<i>Correlation coefficient R</i>								
<i>(p-value)</i>								
Delayed Memory				Working Memory				
	Low-Load	Low-Load with Distractor	High-Load	Memory Load 2	Memory Load 3	Memory Load 4	Memory Load 5	Memory Load 6
Areas related to the ventral attentional system								
R. inferior Frontal-Opercular	-0.243 (0.348)	-0.073 (0.779)	0.255 (0.323)	0.262 (0.309)	0.094 (0.719)	0.227 (0.381)	0.009 (0.971)	<b>0.681*</b> <b>(0.003)</b>
R. Inferior Frontal-Triangular	-0.118 (0.652)	-0.034 (0.896)	-0.288 (0.262)	-0.077 (0.768)	-0.183 (0.482)	-0.308 (0.229)	-0.421 (0.093)	0.026 (0.920)
R. middle Frontal	0.082	0.052	0.123	0.190	0.368	0.227	0.005	0.168

Gyrus	(0.754)	(0.842)	(0.637)	(0.465)	(0.147)	(0.381)	(0.984)	(0.520)
R. Angular Gyrus	0.027 (0.917)	0.217 (0.404)	-0.038 (0.884)	0.203 (0.436)	0.148 (0.571)	0.086 (0.743)	-0.098 (0.709)	0.238 (0.358)
R. Supra-marginal gyrus	-0.071 (0.786)	0.149 (0.569)	0.227 (0.381)	0.365 (0.150)	0.217 (0.403)	0.240 (0.353)	0.005 (0.984)	<b>0.0570</b> <b>(0.017)</b>
R. superior Temporal Gyrus	-0.002 (0.993)	0.125 (0.634)	0.004 (0.988)	<b>0.514</b> <b>(0.035)</b>	0.279 (0.278)	0.369 (0.145)	0.218 (0.402)	0.104 (0.690)
Areas related to the dorsal attentional system and working memory storage capacity								
R. superior Frontal gyrus	0.232 (0.370)	0.253 (0.327)	0.134 (0.608)	<b>0.550</b> <b>(0.022)</b>	<b>0.568*</b> <b>(0.017)</b>	0.370 (0.144)	0.217 (0.402)	0.107 (0.684)
R. superior Parietal Gyrus	0.375 (0.138)	0.417 (0.096)	0.295 (0.251)	<b>0.568</b> <b>(0.017)</b>	<b>0.630*</b> <b>(0.007)</b>	0.386 (0.126)	0.239 (0.356)	0.297 (0.248)
R. Intra-parietal Sulcus	<b>0.490</b> <b>(0.046)</b>	0.438 (0.079)	0.115 (0.659)	0.442 (0.076)	<b>0.574*</b> <b>(0.016)</b>	0.447 (0.072)	0.395 (0.117)	<b>0.569</b> <b>(0.017)</b>
Areas related to episodic memory								
R. Entorhinal Cortex	-0.202 (0.438)	-0.004 (0.989)	-0.324 (0.204)	0.110 (0.673)	-0.039 (0.882)	0.017 (0.948)	-0.032 (0.902)	-0.030 (0.908)
R. Para-hippocampal Gyrus	-0.202 (0.436)	-0.055 (0.834)	0.088 (0.737)	0.025 (0.924)	0.070 (0.788)	0.070 (0.790)	-0.130 (0.618)	0.219 (0.398)
R. hippocampal volume	-0.086 (0.744)	-0.030 (0.910)	-0.304 (0.235)	0.289 (0.261)	0.072 (0.784)	-0.029 (0.913)	-0.031 (0.906)	-0.091 (0.729)

Association analysis results showing Pearson correlation coefficient R (p-value). \* indicates significant results at  $FWER=0.05$ . Association analyses were conducted with adjustment for age and education.