SUPPLEMENTARY MATERIAL

Detailed description of WM ROI placement.

With the exception of the putamen, all ROIs consisted of a seven voxel, 3D crosshairs. The genu and splenium of the corpus callosum were initially identified in sagittal sections, one slice lateral to the midline. ROIs were drawn in the axial view as close as possible to the center of the structure. The ROIs were then viewed in the sagittal plane to ensure that they were as close to the center of each region as possible. The radiate PFC ROIs, underlying the middle frontal gyrus, were defined in axial sections at the point where the callosal projections from the genu could clearly be seen branching out into the forceps minor. A label was placed in the middle of the intersection of the forceps minor with the anterior thalamic radiations. The radiate OFC ROIs, underlying the inferior frontal gyrus, were defined in axial section as one slice lateral to the last section in which the genu of the callosum was visible (i.e., at the point where the callosal decussation disappeared). A label was placed in the middle of the circumscribed hyperintense region defined by the merging of the outer callosal fibers with the uncinate fasciculus and anterior thalamic radiations. The posterior radiate ROIs, underlying the occipital lobe, were defined in axial view as the intersection between forceps major and the outer segment of the splenium of the corpus callosum.

The putamen, the only non-WM ROI, was identified in axial section where the splenium of the callosum was still visible, but at its most lateral extent. A single rectangular label, approximately 2 x 2 x 3 voxels, was placed in the middle of the circumscribed

hypointense region falling between the internal and external capsules. The superior sagittal striatum ROI was defined in sagittal section as the region just anterior to the intersection of the sagittal stratum, inferior longitudinal fasciculus, and inferior fronto-occipital fasciculus. A single crosshair label was placed near the center of this intersection. To minimize the possibility of WM-CSF partial volume effects, we avoided any voxels that appeared to flank the ventricles.

Based on the loci of significant correlations between FA and composite scores on cognitive control and episodic memory tasks, two additional ROIs were drawn for the OA. To capture the regions with the highest correlations and to minimize the number of statistical comparisons, we chose a single frontal and single posterior ROI to label in both hemispheres. The anterior ROI was placed in the WM underlying PFC, but was placed more medially than the above PFC label. That is, on an axial section superficial to the slice used earlier, a label was placed at the base of the forceps minor before it fully branched out into the anterior corona radiata. The posterior ROI was drawn in the WM underlying the parietal lobe. An axial slice was chosen in which the decussation of the body of the corpus callosum was clearly visible. Moving medially to the posterior callosum, the posterior segment of the cingulum bundle was identified, and a line connecting the left and right cingulum, but extending out laterally, was used as an anterior-posterior landmark. Along this reference line, a seven-voxel 3D crosshairs label was placed in the middle of the largest lateral WM tract, most likely corresponding to the superior longitudinal fasciculus.