

Appendix 1 Seed-based fiber tracking

To generate seed regions for tractography, whole-brain tractography was performed using the iFOD2 algorithm, which employs second-order Integration over fiber orientation distributions. A total of ten million streamlines were randomly seeded throughout the entire brain volume. Regions of interest (ROIs) were defined on the fractional anisotropy (FA) image, i.e., the brain regions with group difference in voxel-mirrored homotopic connectivity (VMHC). The orbital part of the inferior frontal cortex (OFC) and middle temporal gyrus (MTG) regions exhibiting significant group differences (VMHC) were registered into each subject's T1 space and used as inclusion regions in separate runs (two runs in total, one for OFC and one for MTG). Tracking was terminated upon the initiation of a cumulative count of 100,000 tracks.

The MRtrix software package was employed for the implementation of tractography. The probabilistic “bootstrap” algorithms were utilized for diffusion tensor imaging (DTI)-based tractography, while probabilistic constrained spherical deconvolution (CSD)-derived tractography was performed using the iFOD2 algorithm. The default settings in MRtrix were employed for these tractography methods. Tract density maps were generated in the native structural brain space using the MRtrix software package, and a threshold of 10 streamlines per voxel was applied to mitigate the inclusion of potentially spurious tracts.

In summary, bilateral MTG and OFC regions were used as seed regions, respectively, for targeted fiber tracking. And then observe whether the tracked target fiber bundles traverse the corpus callosum structurally altered region (CCMid).