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## FRONTO-TEMPORAL DISCONNECTIVITY AND SYMPTOM SEVERITY IN AUTISM SPECTRUM DISORDERS

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**Background:** There is increasing evidence that many of the core behavioral impairments in autism spectrum disorders (ASD) emerge from disconnectivity of networks that are important for social communication. It is less clear, which specific fiber tracts are involved and how possible alterations of white matter are associated with clinical symptomatology and neuropsychological characteristics in ASD.

**Methods:** 18 children with ASD and 18 carefully matched typically developing controls aged 6-12 years were examined using diffusion tensor imaging (DTI) and voxel-based morphometry (VBM). Fractional anisotropy (FA) values were correlated with

(i) symptom severity as indexed by the children's scores on the Autisms Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised (ADI-R) and

(ii) results from the Childrens Embedded Figures Test (CEFT).

**Results:** Decreased FA values were identified for the fornix (FO), the superior longitudinal fasciculus (SLF) the corpus callosum and the uncinate fasciculus (UF) in the ASD group compared to controls, with most prominent differences in the UF bilaterally and the right SLF. FA values of affected fiber tracts were negatively associated with clinical measures of autistic smypotmatology and response time of the CEFT. Additionally, we observed decreased grey matter concentration in the left supramarginal gyrus.

**Conclusion:** Our findings support the hypothesis of abnormal white matter microstructure of fronto-temporal cortical networks in ASD, which are associated with core symptoms of the disorder.