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LANDA, C. SCHRETLEN, M. VARVARIS, J. PEÑA LASA &
N. OJEDA DEL POZO. Altered White Matter Connectivity Relates
to Processing Speed Deficits in Schizophrenia.**

Objective: Schizophrenia is associated with impairments in many cognitive functions, but processing speed (PS) may be considered the most prevalent deficit in this disorder. This cognitive function has been related to white matter (WM) integrity in other pathologies and in healthy aging in several brain areas. Our aim is to investigate the relationship between performance on tasks of PS and whole brain WM fractional anisotropy (FA) in schizophrenia.

Participants and Methods: We recruited 73 stable outpatients with schizophrenia (mean age=37) and 42 healthy controls (mean age=44). Participants were given an extensive battery of neuropsychological tests and a diffusion tensor MRI on a Siemens 3T scanner. Total correct responses on the letter portion of the Salthouse Perceptual Comparison Test (PCT) were considered indicative of PS and was correlated with WM FA values. Whole-brain voxel-wise regression analysis of PS and cerebral WM FA data was performed using TBSS (Tract-Based Spatial Statistics) as implemented in FSL.

Results: Participants with schizophrenia performed significantly worse than controls on the PCT ($p < .01$). In participants with schizophrenia the strongest positive correlation between performance and FA was found in a cluster of voxels ($n=9309$) in the forceps minor and genu of the corpus callosum bilaterally ($p_{corrected} = .016$). PS also correlated significantly with FA in the bilateral superior corona radiata, bilateral corticospinal tract and with WM adjacent to the primary somatosensory area. No correlations surviving correction existed between processing speed and FA in the control group.

Conclusions: Our results reinforce the previously documented impairment on tasks of PS in participants with schizophrenia as well as the relationship between decreased FA in fronto-parietal regions and the corpus callosum and deficits in PS. Finally, we conclude that there exists a contribution of specific WM tracts to impairments in PS in schizophrenia. Correspondence: *Naroa Ibarretxe-Bilbao, University of Deusto, Avenida de las Universidades 24, Bilbao 48007, Spain. E-mail: naroa.ibarretxe@deusto.es*