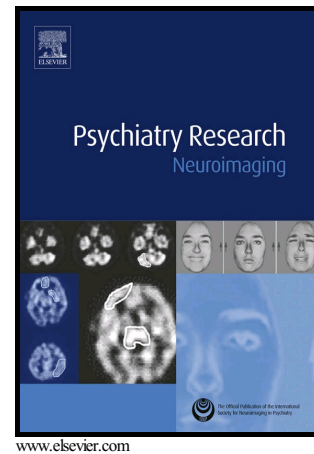


Author's Accepted Manuscript

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PII: S0925-4927(17)30088-4
DOI: <http://dx.doi.org/10.1016/j.psychresns.2017.06.004>
Reference: PSYN10701

To appear in: *Psychiatry Research: Neuroimaging*

Received date: 14 March 2017
Revised date: 8 May 2017
Accepted date: 2 June 2017

Cite this article as: Matthew R. Woodward, Michael G. Dwyer, Niels Bergsland, Jesper Hagemeyer, Robert Zivadinov, Ralph HB. Benedict and Kinga Szigeti Olfactory identification deficit predicts white matter tract impairment in Alzheimer's disease, *Psychiatry Research: Neuroimaging* <http://dx.doi.org/10.1016/j.psychresns.2017.06.004>

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Olfactory identification deficit predicts white matter tract impairment in Alzheimer's disease

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Abstract

Olfactory identification deficit (OID) has been associated with both aging and Alzheimer's disease (AD). In the context of amnesic disorders, OID predicts conversion to AD. Neuroanatomical correlates could increase specificity and sensitivity and elucidate the mechanistic differences between OID in AD and aging. Cross-sectional analysis of white matter microstructural changes was performed using diffusion tensor imaging (DTI) and tract-based-spatial-statistics in amnesic mild cognitive impairment (aMCI), AD and normal controls (NC) in 66 subjects (26 AD, 15 aMCI, 25 NC). DTI 3-Tesla MRI scans were analyzed and subject level means for fractional anisotropy (FA), mean diffusivity (MD), radial and axial diffusivity (λ_1D and $\lambda_{2,3}D$) were calculated. Linear regression models were applied using DTI markers as predictor and OID as outcome. OID was associated with increased λ_1D in aMCI and increased MD, λ_1D and $\lambda_{2,3}D$ in AD. Voxel-wise analyses revealed widespread differences in all markers in AD.

¹ indicates co-first authorship

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