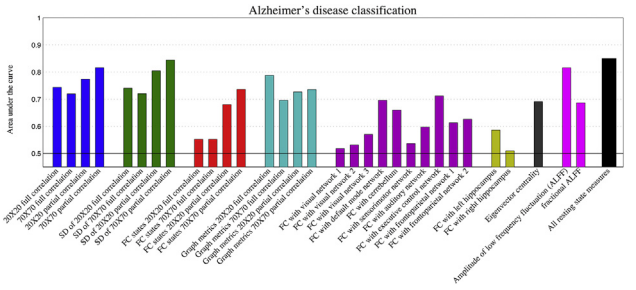
Model tested	F-value for model	P-value for model	β-coefficients	P-value for predictor
Cohort 1	3.17	0.0196*		
Age	–	–	0.000	0.46
Sex	–	–	0.004	0.17
Education	–	–	-0.001	0.06
Animal Fluency	–	–	0.001	0.00*
Cohort 2	4.70	0.0035		–
Age	–	–	-0.001	0.07
Sex	–	–	0.009	0.07
Education	–	–	-0.000	0.84
Animal Fluency	–	–	0.001	0.00*
Cohort 1	3.73	.0087		-
Age	–	–	0.000	0.89
Sex	–	–	0.004	0.20
Education	–	–	-0.001	0.27
Composite Language Fluency Score	–	–	0.004	0.00*
Cohort 2	4.50	.0044		–
Age	–	–	-0.001	0.01
Sex	–	–	0.008	0.12
Education	–	–	0.000	0.97
Composite Language Fluency Score	–	–	0.003	0.01*

decline (SCD, 22), mild cognitive impairment (MCI, 12), and AD (11). Cohort2 was a replicate sample of 58 older adult participants from the Indiana Memory and Aging study (CN, 13; SCD, 16; MCI, 21; AD, 8). Subjects underwent baseline rsfMRI; image data were processed with an in-house pipeline according to Power et al. [1]. Functional connectivity (FC) matrices were generated, which included FC data from 278 functionally-derived gray matter regions [2]. A data-driven connectivity approach (connICA) [3] was employed to extract independent FC patterns and how much each FC-pattern was present in each subject (weights). FC pattern weights were used as the dependent variable in a multilinear regression model with cognitive variables as predictors (Cognitive Complaint [4] and Cognitive Change [5] Index scores, episodic memory, executive function, animal fluency, and composite language fluency scores), with inclusion of nuisance variables. **Results:** Both datasets revealed a prominent resting state network pattern, as reported in Contreras et al [6]. In both cohorts, the RSN pattern was positively associated with animal and composite language fluency scores. Both language fluency measures were predictive of RSN pattern ($p<.005$, Table 1) demonstrating that participants with lower language fluency scores had lower FC within the canonical RSN pattern. **Conclusions:** Deficient performance on language fluency tests may be a good predictor of aberrant brain connectivity in early stages of AD. [1] Power et al(2014)Neuroimage; [2]Shen et al(2011)NeuroImage [3]Amico et al(2016)NeuroImage [4] Saykin et al(2006)Neurology [5] Rattanabannakit et al(2016)J Alzheimer's Dis [6] Contreras et al(2017)Alzheimers&Dementia.

IC-P-028 A COMPREHENSIVE ANALYSIS OF RESTING STATE FMRI MEASURES TO CLASSIFY INDIVIDUAL PATIENTS WITH ALZHEIMER'S DISEASE

Frank de Vos[1,2,3], Marisa Koini[4], Tijn M. Schouten[1,2,3], Stephan Seiler[4], Jeroen van der Grond[2], Anita Lechner[4], Reinhold Schmidt[4], Mark de Rooij[1], Serge A. R. B. Rombouts[1,2,3], *[1]Leiden University, Leiden, Netherlands;*



[2]Leiden University Medical Center, Leiden, Netherlands; [3]Leiden Institute for Brain and Cognition, Leiden, Netherlands; [4]Medical University of Graz, Graz, Austria. Contact e-mail: f.de.vos@fsw.leidenuniv.nl

Background: Alzheimer's disease (AD) patients show altered patterns of functional connectivity (FC) on resting state functional magnetic resonance imaging (RSfMRI) scans. It is yet unclear which RSfMRI measures are most informative for the individual classification of AD patients. **Methods:** We investigated this using RSfMRI scans from 77 AD patients (MMSE $= 20.4 \pm 4.5$) and 173 controls (MMSE $= 27.5 \pm 1.8$). We calculated i) FC matrices between resting state components as obtained with independent component analysis (ICA), ii) the dynamics of these FC matrices using a sliding window approach, iii) we distinguished five FC states and administered how long each subject resided in each of these five states, and iv) we calculated the graph properties (e.g., connection degree, and clustering coefficient) of the FC matrices. Furthermore, for each voxel we calculated v) FC with 10 resting state networks using dual regression, vi) FC with the hippocampus, vii) eigenvector centrality, and viii) the amplitude of low frequency fluctuations (ALFF). These eight measures were used separately as predictors in an elastic net logistic regression, and combined in a group lasso logistic regression model. We calculated the area under the receiver operating characteristic curve plots (AUC) to determine classification performance. **Results:** The AUC values ranged between 0.51 and 0.84 and the highest were found for the FC matrices (0.82), FC dynamics (0.84) and ALFF (0.82). The combination of all measures resulted in an AUC of 0.85. **Conclusions:** We show that it is possible to obtain moderate to good AD classification using RSfMRI scans. FC matrices, FC dynamics and ALFF are most discriminative and the combination of all the resting state measures improves classification accuracy slightly.

IC-P-029 GAUSSIAN MARKOV RANDOM FIELDS FOR ASSESSING INTERMODAL REGIONAL ASSOCIATIONS IN PRODROMAL ALZHEIMER'S DISEASE

Martin Dyrba[1], Michel J. Grothe[1], Harald Binder[2], Thomas Kirste[3], Stefan J. Teipel[1,4], *[1]German Center for Neurodegenerative Diseases (DZNE), Rostock, Germany; [2]Institute of Medical Biostatistics, Epidemiology and Informatics, University Medical Center, Mainz, Germany; [3]University of Rostock, Rostock, Germany; [4]Department of Psychosomatic Medicine, University Medicine Rostock, Rostock, Germany. Contact e-mail: martin.dyrba@dzne.de*

Background: Alzheimer's disease (AD) is characterized by a cascade of pathological processes that can be assessed in vivo using different neuroimaging methods. Recent research suggests a systematic sequence of pathogenic events on a global biomarker level, but little is known about the associations and