

Do 2-year changes in superior frontal gyrus and global brain atrophy affect cognition?

Authors:

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ANNEX 2

Supplementary figures and tables

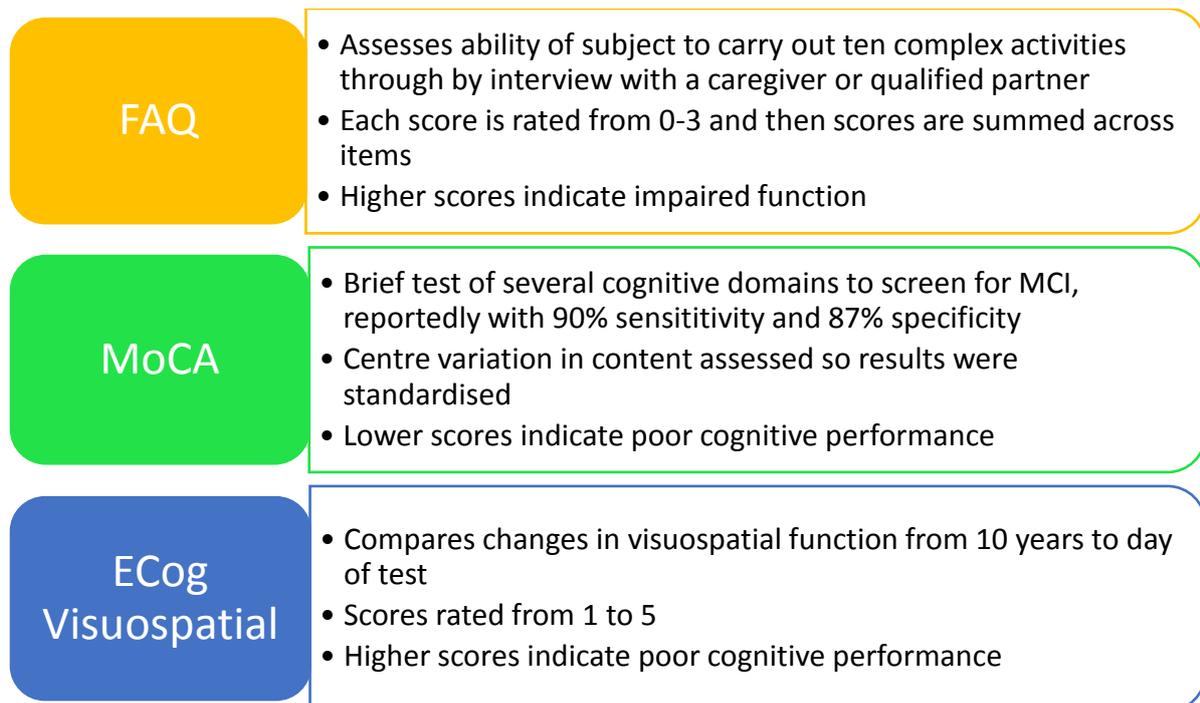


Figure S1. Schema summarizing content and scoring system of the FAQ, MoCA and ECog Vissuospatial cognitive tests

Table S1. Sample Characteristics

	CN	EMCI	LMCI	AD
Mean Age (SD)	73.434 (6.082)	69.36 (7.219)	70.310 (8.508)	75.843 (10.891)
Sample size (% men)	71 (46.5)	65 (66)	61 (44)	7 (57)
Years of Education (mean(SD))	16.6 (2.2)	16.3 (2.7)	16.5 (2.4)	16 (3.1)
MMSE at baseline (mean (SD))	29.1 (1.41)	28.5 (1.8)	27.5 (1.84)	21.4 (1.6)
ApoE4	17	28	23	7
Family History of AD	42	46	37	3

Table S2 – Results from the step-wise general linear models for exploring the associations between changes in the measurements of the superior frontal gyrus (SFG) and the changes in the outcome of the cognitive tests.

General linear models			Estimate	Estimate	Estimate
Outcome variable	Covariates	Models' fitness (p-value)	(p-value) for mean change in surface area	(p-value) for change in the average cortical thickness	(p-value) for change in the SFG volume
FAQ (Y1→Y2)	age, MMSE, yrs education, FH dementia, gender, EMRF, CVRF	4.13e-06**	n/a	n/a	n/a
FAQ (Y2→Y3)	age, MMSE, yrs education, FH dementia, gender, EMRF, CVRF	0.0122*	n/a	n/a	n/a
FAQ (Y1→Y3)	age, MMSE, yrs education, FH dementia, gender, EMRF, CVRF	0.0009**	n/a	n/a	n/a
MoCA (Y1→Y2)	age, MMSE, yrs education, FH	0.00256*	n/a	n/a	n/a

	dementia, gender, EMRF, CVRF				
MoCA (Y2→Y3)	age, MMSE, yrs education, FH dementia, gender, EMRF, CVRF	0.000158**	n/a	n/a	n/a
MoCA (Y1→Y3)	age, MMSE, yrs education, FH dementia, gender, EMRF, CVRF	0.00955* /1.31e-05**	n/a	n/a	19.92 (1.139e-05)**
ECog Visuospatial (Y1→Y2)	age, MMSE, yrs education, FH dementia, gender, EMRF, CVRF	0.00982*	n/a	n/a	n/a
ECog Visuospatial (Y2→Y3)	age, MMSE, yrs education, FH dementia, gender, EMRF, CVRF	0.00018*	n/a	n/a	n/a
ECog Visuospatial (Y1→Y3)	MMSE, yrs education, FH dementia, gender, EMRF, CVRF	1.93e-07** /1.6e-05**	0.001 (1.202e-06)**	n/a	n/a

Legend: MMSE = Mini Mental State Examination results at baseline, FH dementia = family history of dementia, EMRF = endocrino-metabolic risk factors, CVRF = cardiovascular risk factors, Y1 = year 1, Y2 = year 2, Y3 = year 3, n/a = not applicable due to term not included as predictor in the model

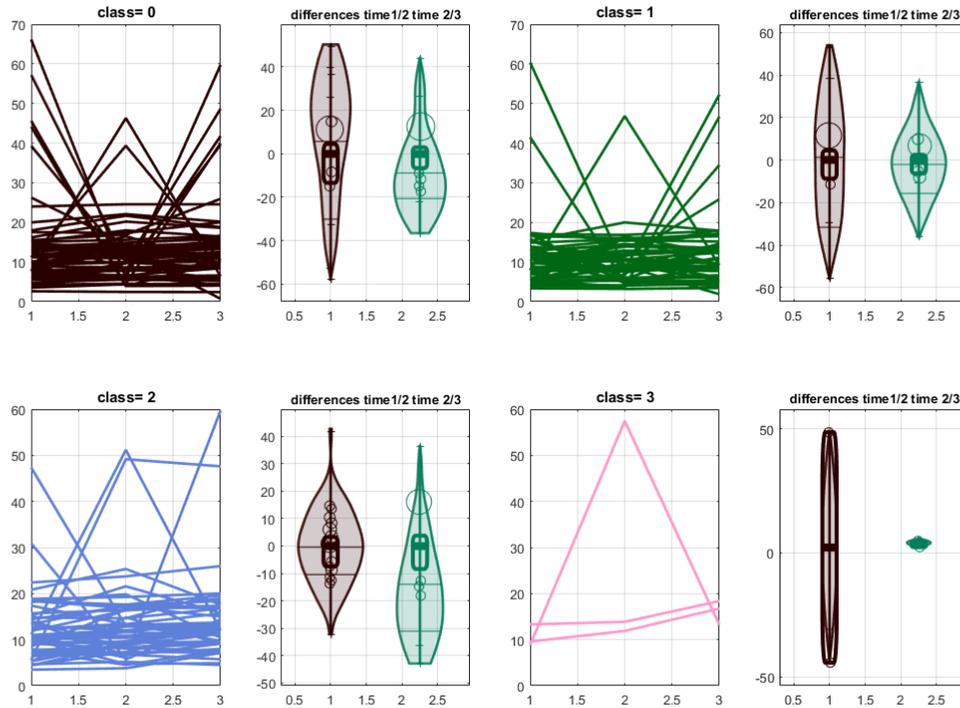


Figure S2. Graphical representation of the percentage of CSF volume in intracranial volume in the final sample (n = 177) at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patients).

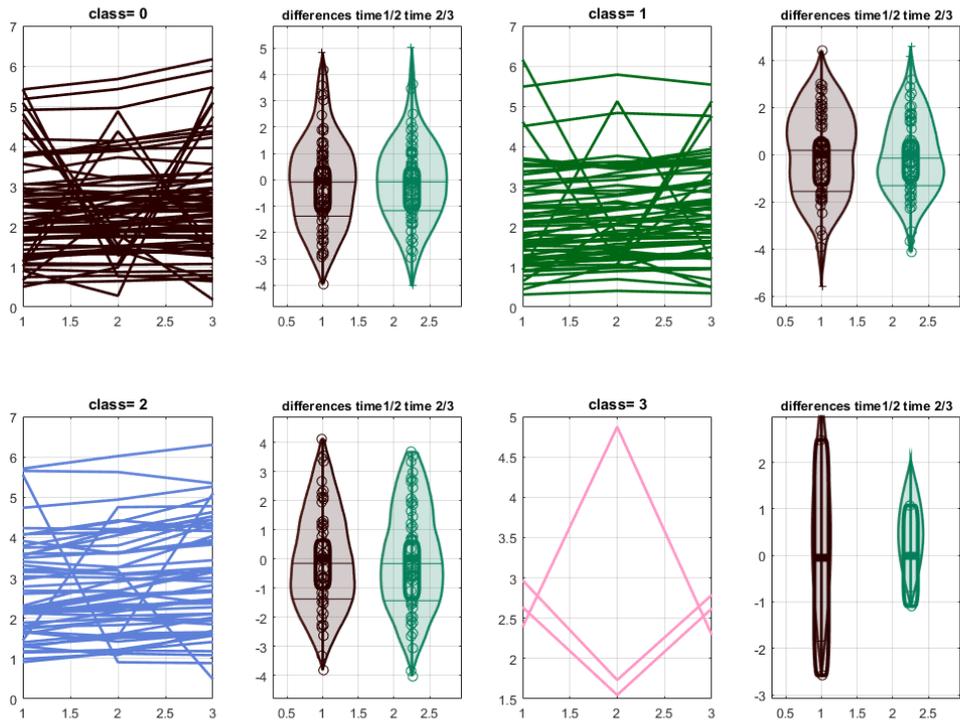


Figure S3. Graphical representation of the percentage of ventricular volume in intracranial volume in the final sample ($n = 177$) at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patients).

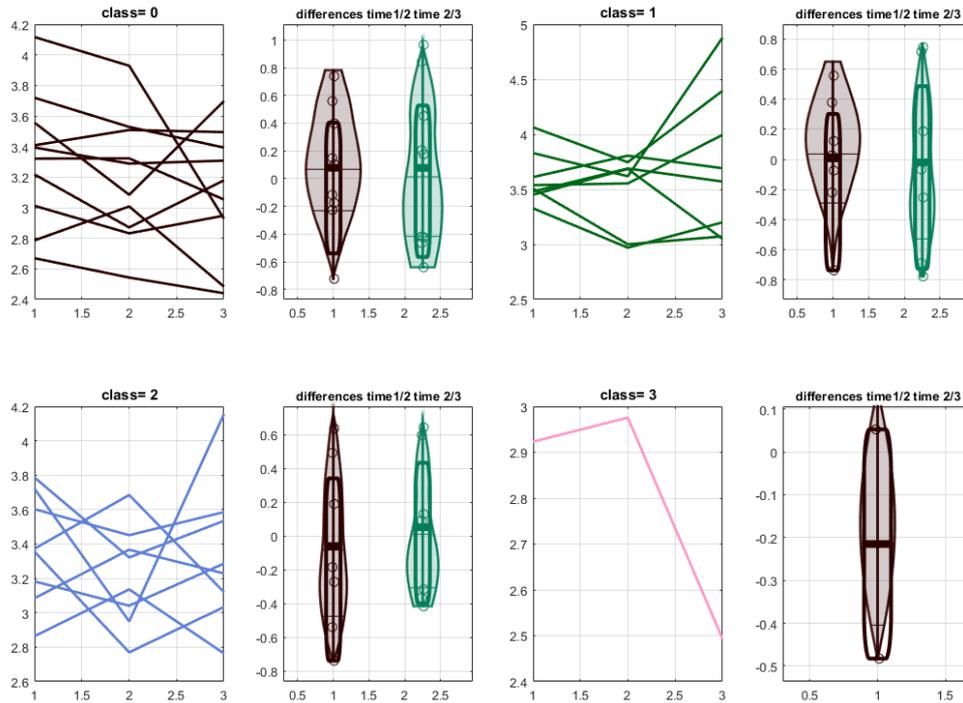


Figure S4. Graphical representation of the average cortical thickness in the final sample at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patients).

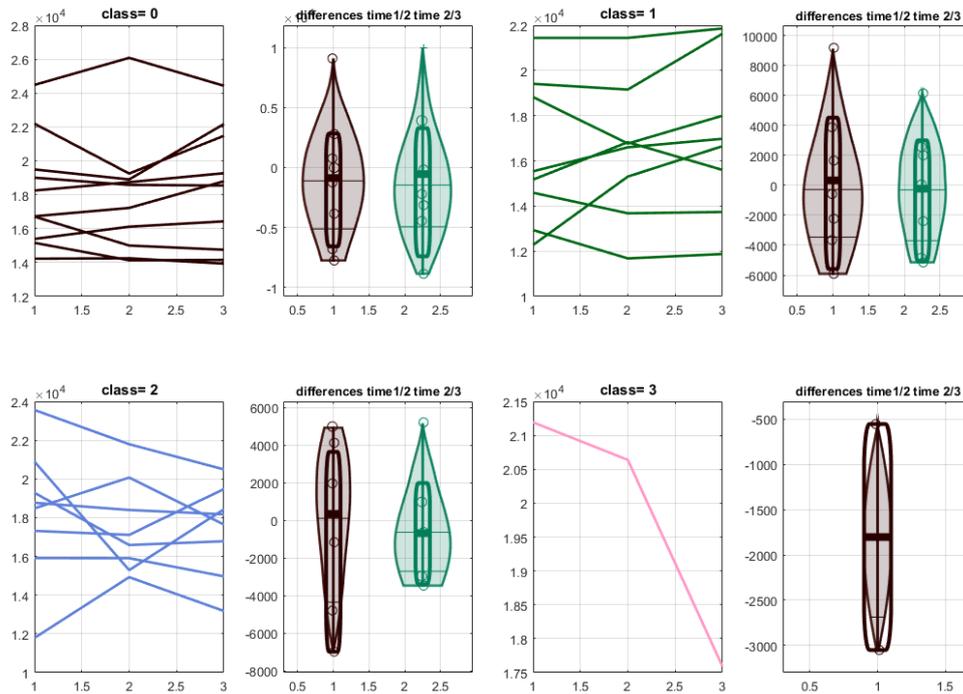


Figure S5. Graphical representation of the average surface area in the final sample at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patients).

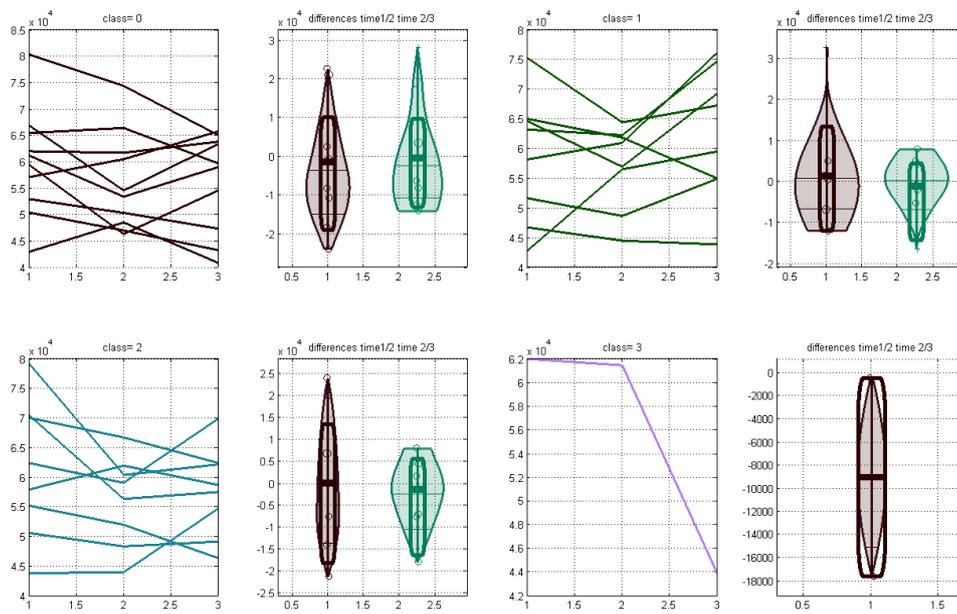


Figure S6. Graphical representation of the SFG volume in the final sample at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patient).

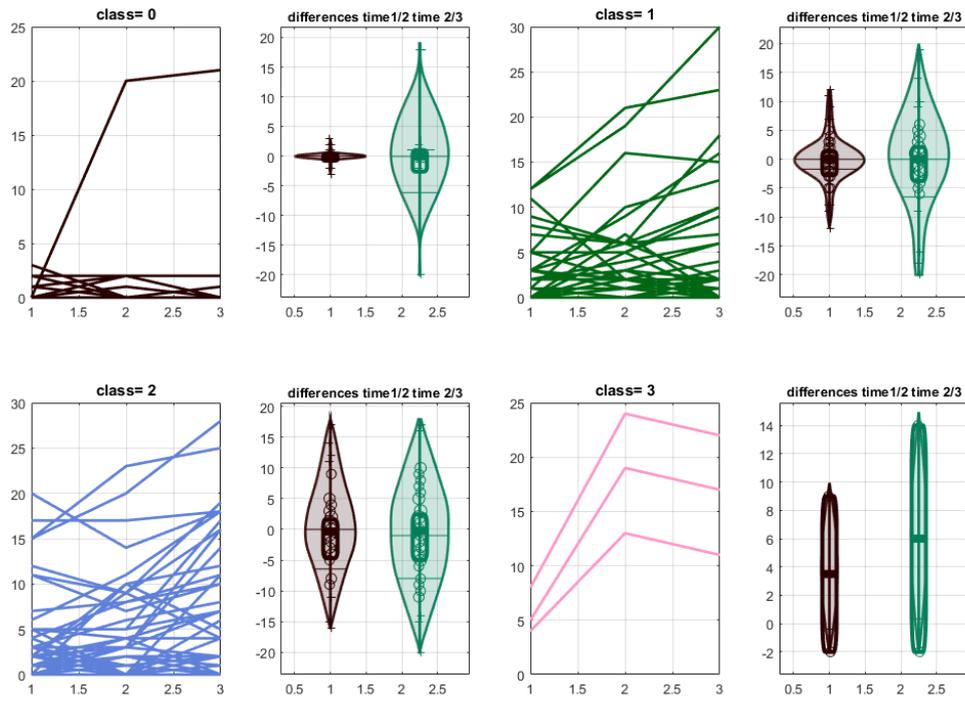


Figure S7. Graphical representation of the result of the Functional Activities Questionnaire (FAQ) in the final sample (n = 177) at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patients).

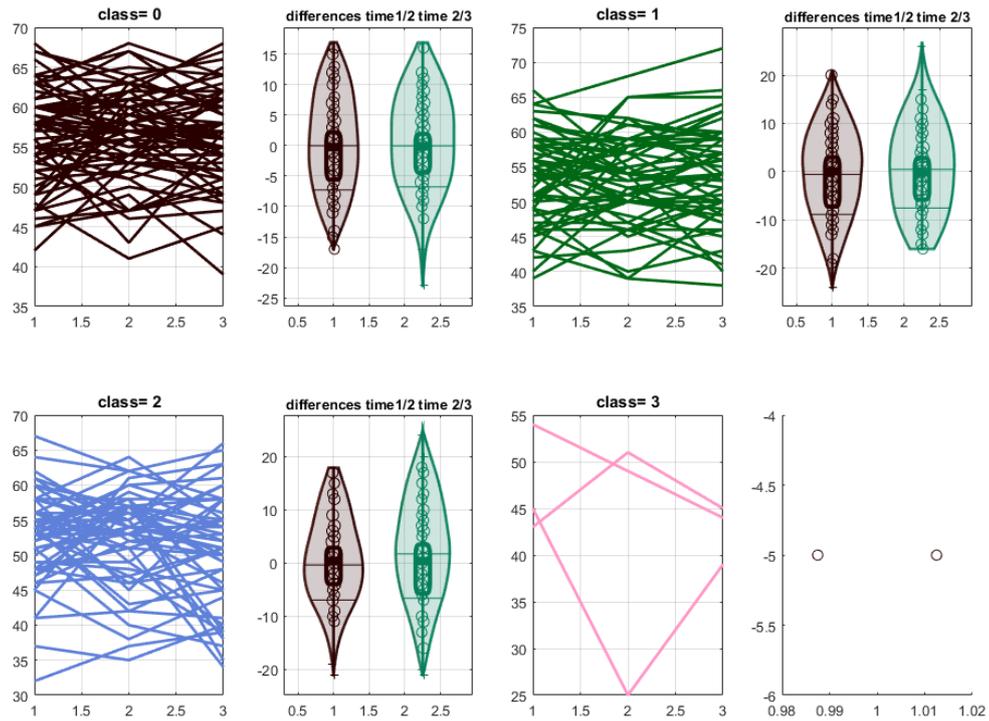


Figure S8. Graphical representation of the result of the Montreal Cognitive Assessment (MoCA) in the final sample ($n = 177$) at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patients).

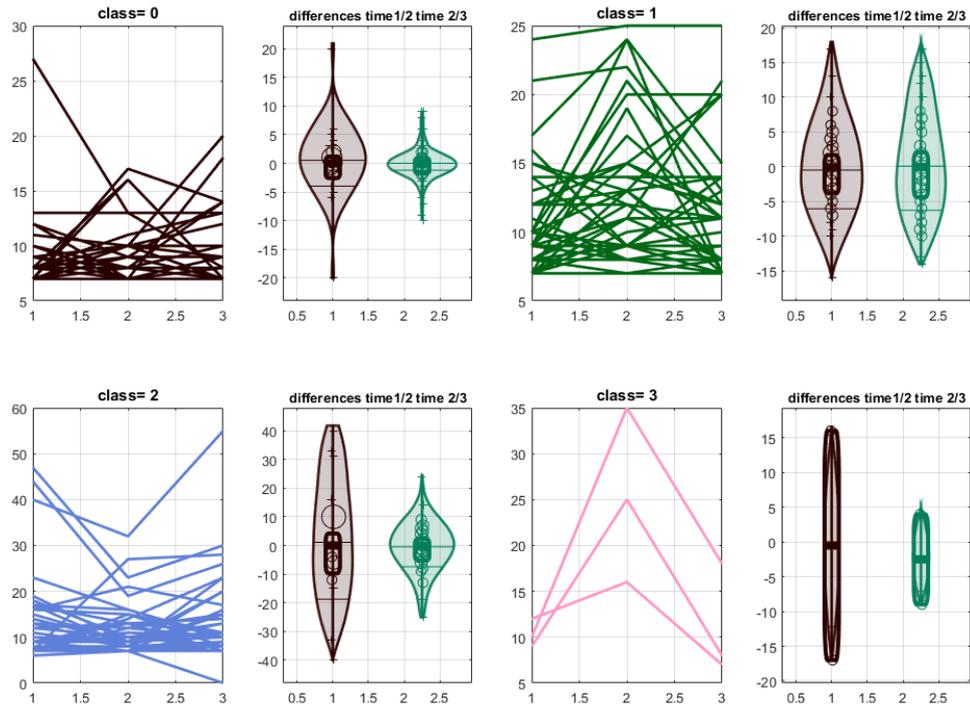


Figure S9. Graphical representation of the result of the Everyday Cognition (ECog) Visuospatial test in the final sample ($n = 177$) at the three time-points evaluated and distribution of the differences between two consecutive time-points, separately for each subject group (Class 0 = cognitively normal, Class 1 = early mild cognitive impairment, Class 2 = late cognitive impairment, Class 3 = Alzheimer's Disease patients).

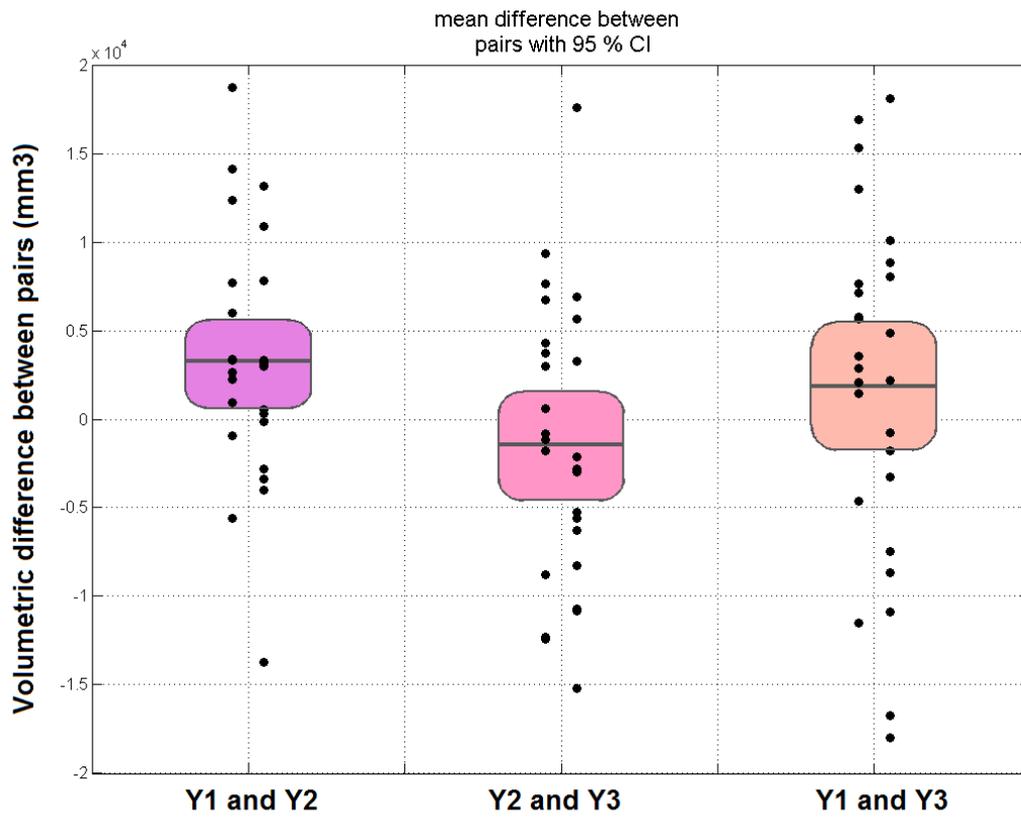


Figure S10. Paired differences of the SFG volume measurements took on two consecutive years (first two columns from left to right) and two years apart (third column from left to right).