



Subject: job1634360

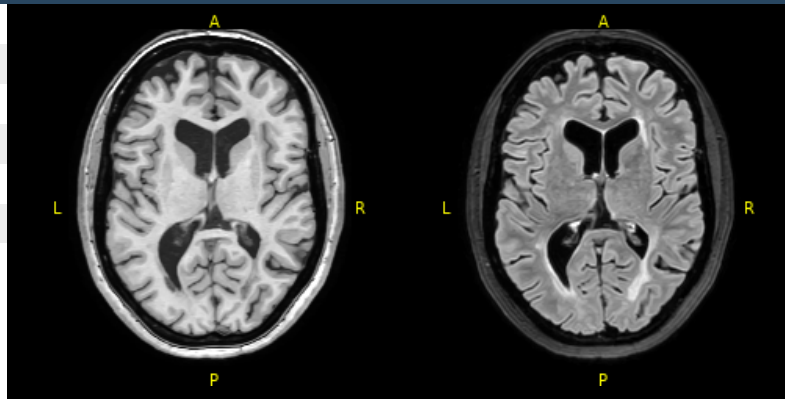
Sex: Female

Age: 53.0

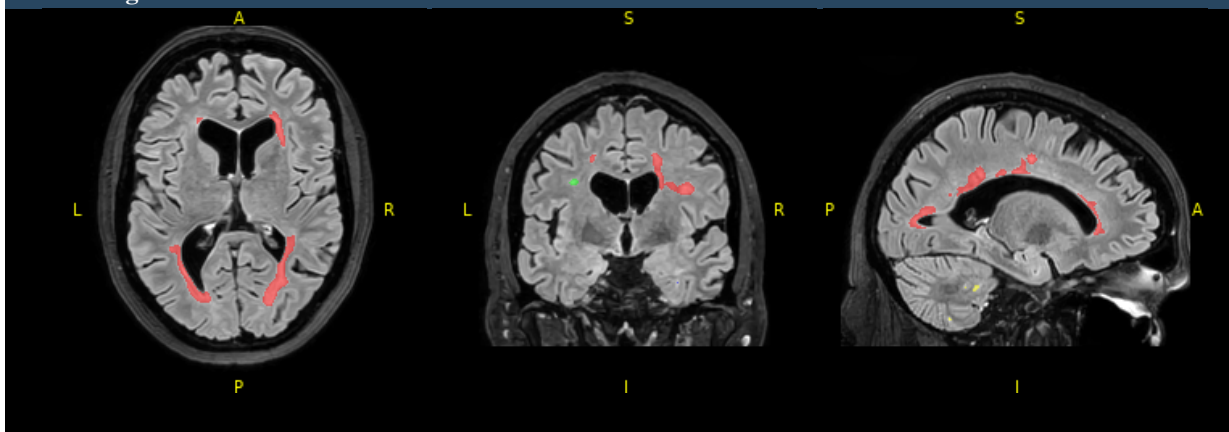
Report date: 16-Nov-2023

Quality control T1: **A**

Quality control FLAIR: **A**



Lesion segmentation



Lesion	Count	Volume (cm ³ / %)	Lesion burden (%)
Total lesions	33	17.1056 / 1.2917	4.3165
Periventricular	11	15.3961 / 1.1626	3.8851
Deepwhite	10	0.1418 / 0.0107	0.0358
Juxtacortical	8	0.3443 / 0.0260	0.0869
Infratentorial	4	1.2234 / 0.0924	0.3087
Cerebellar	4	1.2234 / 0.0924	0.3087
Medular	0	0.0000 / 0.0000	0.0000

All the volumes are presented in absolute value (measured in cm³) and in relative value (measured in relation to the IC volume).

The quality control evaluates the input image quality after preprocessing. **A** = good, **B** = moderate (i.e., the output requires human verification) and **C** = bad (i.e., the output should not be used).

The Lesion burden is calculated as the lesion volume divided by the total WM volume (in percent).

The Asymmetry Index is calculated as the difference between right and left volumes divided by their mean (in percent).

All the result images are located in the MNI space (neurological orientation).

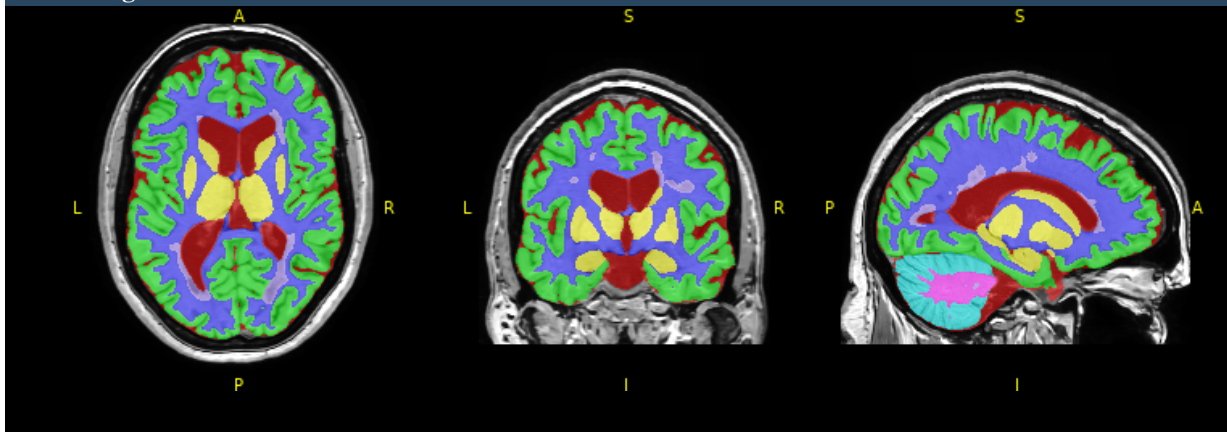
Values between brackets show expected limits (95%) of normalized volume in function of sex and age for each measure for reference purpose.

Values outside the limits are highlighted in red.

R. A. Kamraoui, V.-T. Ta, T. Tourdias, B. Mansencal, J. V Manjon, P. Coupé, *DeepLesionBrain: Towards a broader deep-learning generalization for multiple sclerosis lesion segmentation*, Medical Image Analysis, 76, 2022 PDF

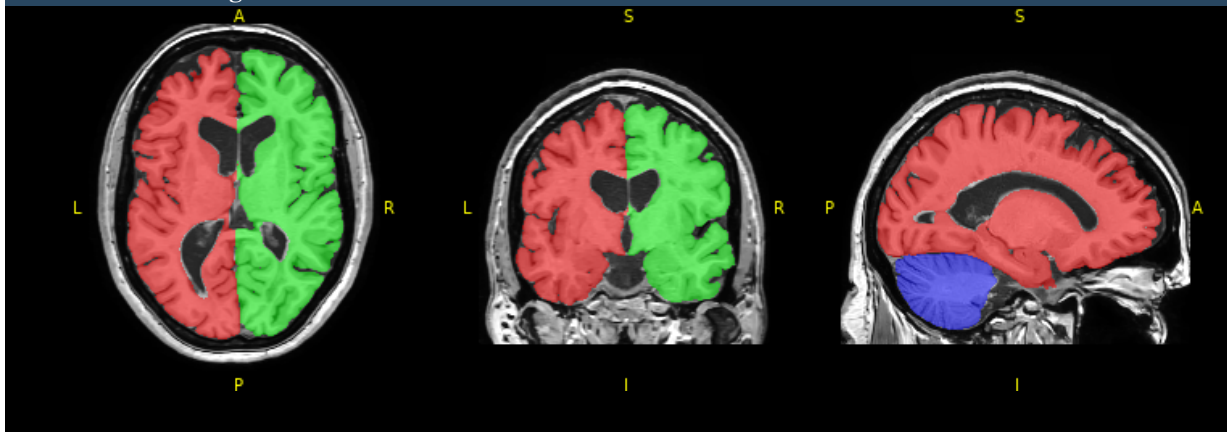
P. Coupé, B. Mansencal, M. Clément, R. Giraud, B. Denis de Senneville, V.-T. Ta, V. Lepetit, J. V. Manjon, *AssemblyNet: A large ensemble of CNNs for 3D whole brain MRI segmentation*, NeuroImage, Elsevier, 2020, 219, pp.117026 PDF

Tissue segmentation



Tissue	Volume (cm^3 / %)	
White Matter (WM)	413.39 / 31.217	[30.438, 35.226]
Normal appearing WM	396.28 / 29.925	
Abnormal appearing WM	17.11 / 1.292	
Grey Matter (GM)	706.46 / 53.348	[50.787, 54.381]
Subcortical GM	39.37 / 2.973	[3.017, 3.516]
Cortical GM	556.79 / 42.046	[39.570, 43.072]
Cerebellar GM	110.30 / 8.329	[7.178, 8.932]
Cerebro Spinal Fluid (CSF)	204.42 / 15.437	[10.182, 16.750]
Brain (WM+GM)	1119.85 / 84.565	[81.989, 88.423]
Intracranial Cavity (IC)	1324.25 / 100.000	[100.000, 100.000]

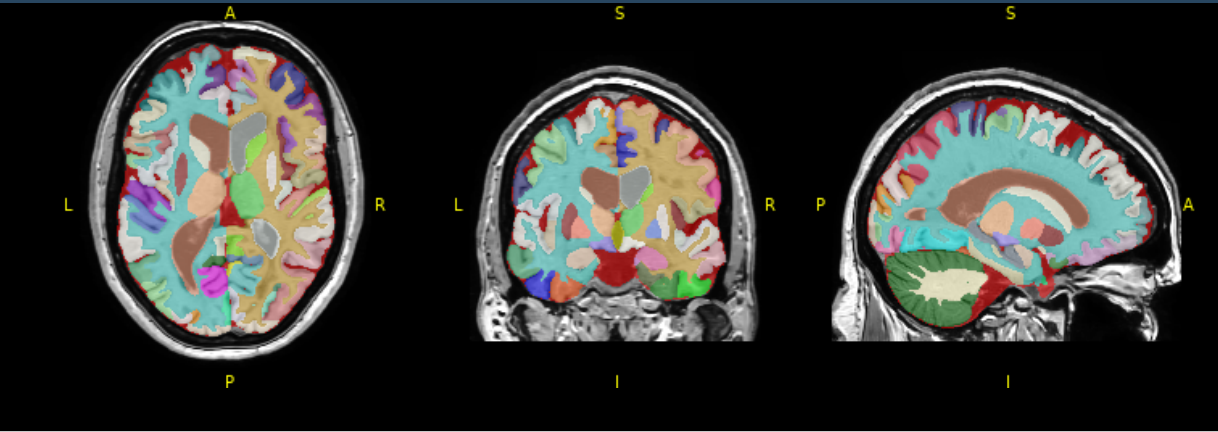
Macrostructure segmentation



Structure	Total (cm ³ / %)	Right (cm ³ / %)	Left (cm ³ / %)	Asymmetry (%)
Cerebrum	968.11 / 73.107 [72.263, 78.425]	481.37 / 36.350 [36.136, 39.272]	486.75 / 36.756 [36.076, 39.211]	-1.1111 [-1.274, 1.598]
Cerebrum WM	371.95 / 28.088 [28.710, 33.257]	184.66 / 13.945 [14.351, 16.644]	187.29 / 14.143 [14.344, 16.646]	-1.4158 [-1.766, 1.845]
Cerebrum GM	596.16 / 45.019 [42.788, 46.343]	296.71 / 22.406 [21.402, 23.223]	299.45 / 22.613 [21.363, 23.154]	-0.9210 [-1.269, 1.808]
Cerebellum*	125.20 / 9.455 [8.059, 10.145]	63.26 / 4.777 [4.050, 5.110]	61.94 / 4.678 [3.993, 5.043]	2.1065 [-1.676, 4.501]
Cerebellum WM	24.33 / 1.837 [1.553, 2.187]	12.56 / 0.948 [0.770, 1.102]	11.77 / 0.889 [0.779, 1.087]	6.4986 [-4.425, 5.462]
Cerebellum GM	100.87 / 7.618 [6.392, 8.067]	50.70 / 3.829 [3.239, 4.050]	50.17 / 3.789 [3.155, 4.010]	1.0473 [-1.687, 4.969]
Vermis	9.43 / 0.712 [0.706, 0.952]			
Brainstem	17.08 / 1.290 [1.145, 1.500]			

* Cerebellum volumes do not include vermis volume.

Structure segmentation



Subcortical	Total (cm^3 / %)	Right (cm^3 / %)	Left (cm^3 / %)	Asymmetry (%)
Accumbens	0.79 / 0.060 [0.052, 0.085]	0.40 / 0.030 [0.023, 0.042]	0.40 / 0.030 [0.028, 0.044]	0.1864 [-28.883, 7.598]
Amygdala	1.87 / 0.141 [0.139, 0.179]	0.95 / 0.072 [0.071, 0.092]	0.92 / 0.070 [0.067, 0.088]	3.0040 [-3.513, 14.448]
Basal forebrain	0.68 / 0.051 [0.039, 0.058]	0.30 / 0.022 [0.017, 0.027]	0.38 / 0.029 [0.021, 0.032]	-24.6995 [-39.863, 0.753]
Caudate	5.94 / 0.449 [0.375, 0.515]	3.04 / 0.230 [0.190, 0.262]	2.90 / 0.219 [0.184, 0.257]	4.6974 [-4.618, 8.849]
Hippocampus	6.24 / 0.472 [0.466, 0.607]	3.23 / 0.244 [0.235, 0.306]	3.01 / 0.228 [0.228, 0.304]	6.8851 [-5.963, 9.421]
Pallidum	2.59 / 0.195 [0.194, 0.255]	1.19 / 0.090 [0.095, 0.125]	1.40 / 0.106 [0.099, 0.129]	-16.2286 [-9.712, 2.381]
Putamen	7.38 / 0.557 [0.564, 0.719]	3.53 / 0.267 [0.279, 0.356]	3.85 / 0.291 [0.283, 0.364]	-8.5060 [-5.793, 2.940]
Thalamus	13.87 / 1.047 [1.047, 1.235]	6.82 / 0.515 [0.520, 0.615]	7.04 / 0.532 [0.525, 0.623]	-3.1746 [-4.880, 2.844]
Ventral DC	8.57 / 0.647 [0.616, 0.770]	4.13 / 0.312 [0.303, 0.380]	4.44 / 0.335 [0.313, 0.391]	-7.2950 [-6.351, 0.439]

Cortical	Total (cm^3 / %)	Right (cm^3 / %)	Left (cm^3 / %)	Asymmetry (%)
Frontal lobe	190.39 / 14.377 [12.618, 14.444]	93.86 / 7.088 [6.311, 7.287]	96.52 / 7.289 [6.269, 7.198]	-2.7939 [-3.080, 4.650]
Frontal pole	6.66 / 0.503 [0.393, 0.558]	3.49 / 0.264 [0.204, 0.295]	3.17 / 0.239 [0.177, 0.275]	9.7204 [-11.721, 27.969]
Gyrus rectus	4.02 / 0.304 [0.245, 0.387]	2.21 / 0.167 [0.123, 0.201]	1.81 / 0.137 [0.111, 0.200]	19.8714 [-26.897, 37.200]
Opercular inf. frontal gyrus	5.41 / 0.408 [0.386, 0.623]	2.82 / 0.213 [0.184, 0.336]	2.59 / 0.196 [0.179, 0.324]	8.3891 [-32.241, 44.565]
Orbital inf. frontal gyrus	3.82 / 0.289 [0.153, 0.293]	2.16 / 0.163 [0.066, 0.151]	1.66 / 0.126 [0.068, 0.158]	25.8314 [-56.882, 50.359]
Triangular inf. frontal gyrus	7.33 / 0.553 [0.390, 0.664]	3.72 / 0.281 [0.181, 0.334]	3.61 / 0.273 [0.179, 0.350]	2.9640 [-39.048, 32.760]
Medial frontal cortex	3.93 / 0.297 [0.208, 0.338]	1.91 / 0.144 [0.097, 0.185]	2.02 / 0.152 [0.095, 0.175]	-5.5274 [-37.143, 40.569]

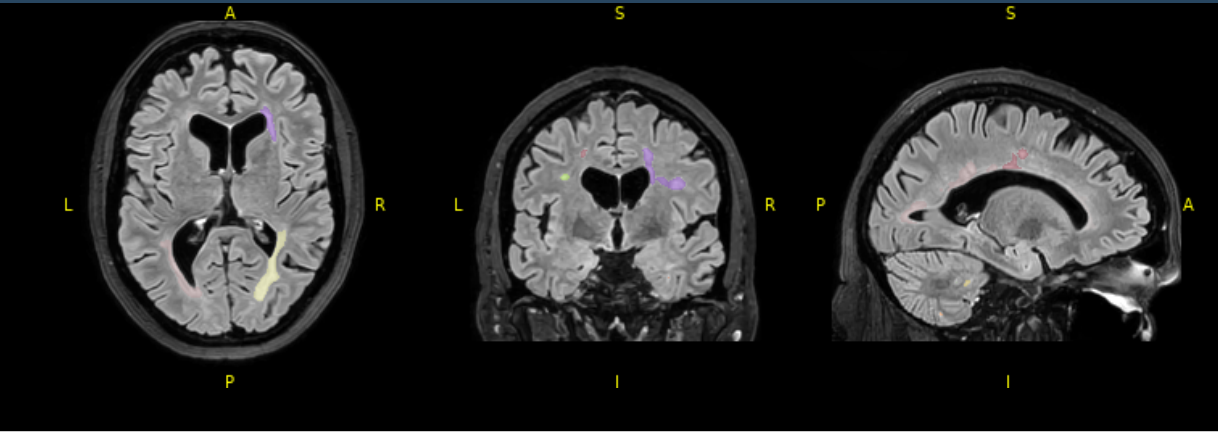
Middle frontal gyrus	46.46 / 3.508 [2.567, 3.295]	23.53 / 1.777 [1.248, 1.695]	22.93 / 1.732 [1.279, 1.659]	2.5603 [-14.264, 14.028]
Anterior orbital gyrus	3.83 / 0.289 [0.218, 0.380]	1.44 / 0.109 [0.103, 0.207]	2.39 / 0.180 [0.095, 0.195]	-49.5080 [-35.676, 51.293]
Lateral orbital gyrus	4.34 / 0.328 [0.275, 0.449]	2.45 / 0.185 [0.125, 0.234]	1.89 / 0.142 [0.125, 0.238]	26.1876 [-39.006, 40.920]
Medial orbital gyrus	9.06 / 0.685 [0.562, 0.783]	4.14 / 0.313 [0.273, 0.396]	4.92 / 0.372 [0.275, 0.404]	-17.2453 [-22.181, 14.925]
Posterior orbital gyrus	7.52 / 0.568 [0.363, 0.547]	3.42 / 0.258 [0.173, 0.283]	4.10 / 0.310 [0.175, 0.281]	-18.1283 [-23.180, 24.795]
Precentral gyrus	26.92 / 2.033 [1.763, 2.167]	13.54 / 1.022 [0.862, 1.102]	13.39 / 1.011 [0.858, 1.098]	1.1196 [-12.998, 13.527]
Precentral gyrus medial segment	4.72 / 0.357 [0.352, 0.502]	2.27 / 0.171 [0.165, 0.262]	2.45 / 0.185 [0.168, 0.260]	-7.6044 [-29.590, 24.947]
Subcallosal area	3.39 / 0.256 [0.123, 0.260]	1.64 / 0.124 [0.062, 0.131]	1.74 / 0.131 [0.061, 0.130]	-5.7168 [-11.458, 17.915]
Sup. frontal gyrus	28.69 / 2.166 [1.892, 2.524]	13.94 / 1.053 [0.902, 1.285]	14.75 / 1.114 [0.941, 1.289]	-5.6704 [-18.235, 15.228]
Sup. frontal gyrus medial segment	13.09 / 0.988 [0.782, 1.154]	6.79 / 0.513 [0.382, 0.630]	6.30 / 0.475 [0.348, 0.569]	7.5638 [-20.551, 40.958]
Supplementary motor cortex	11.21 / 0.846 [0.661, 0.928]	4.40 / 0.332 [0.313, 0.475]	6.81 / 0.514 [0.313, 0.481]	-43.0276 [-26.902, 25.146]
Temporal lobe	108.57 / 8.199 [7.388, 8.714]	53.11 / 4.011 [3.679, 4.428]	55.46 / 4.188 [3.642, 4.356]	-4.3264 [-4.943, 8.271]
Fusiform gyrus	16.57 / 1.251 [0.927, 1.375]	8.20 / 0.619 [0.446, 0.713]	8.37 / 0.632 [0.446, 0.692]	-1.9795 [-22.203, 24.439]
Planum polare	3.62 / 0.274 [0.253, 0.366]	1.86 / 0.140 [0.122, 0.184]	1.77 / 0.134 [0.123, 0.190]	4.8104 [-23.191, 20.088]
Planum temporale	3.82 / 0.288 [0.208, 0.378]	1.54 / 0.116 [0.081, 0.180]	2.28 / 0.172 [0.110, 0.211]	-38.8083 [-62.419, 16.238]
Inf. temporal gyrus	21.92 / 1.655 [1.574, 2.075]	10.24 / 0.773 [0.759, 1.055]	11.68 / 0.882 [0.773, 1.075]	-13.1724 [-19.928, 15.581]
Middle temporal gyrus	28.19 / 2.128 [1.903, 2.448]	14.52 / 1.096 [0.938, 1.248]	13.67 / 1.032 [0.905, 1.243]	6.0180 [-13.522, 18.549]
Sup. temporal gyrus	13.34 / 1.007 [0.901, 1.252]	6.21 / 0.469 [0.434, 0.644]	7.14 / 0.539 [0.430, 0.650]	-13.9210 [-22.099, 21.633]
Transverse temporal gyrus	3.48 / 0.263 [0.180, 0.307]	1.60 / 0.121 [0.082, 0.154]	1.88 / 0.142 [0.089, 0.164]	-16.4826 [-40.890, 22.456]
Temporal pole	17.63 / 1.332 [1.101, 1.559]	8.96 / 0.676 [0.543, 0.795]	8.68 / 0.655 [0.542, 0.778]	3.1759 [-11.376, 15.937]
Parietal lobe	112.66 / 8.508 [7.720, 9.019]	56.70 / 4.282 [3.813, 4.508]	55.96 / 4.226 [3.862, 4.557]	1.3049 [-6.595, 4.938]
Angular gyrus	20.84 / 1.574 [1.243, 1.913]	11.89 / 0.898 [0.651, 1.033]	8.96 / 0.676 [0.544, 0.926]	28.1238 [-10.191, 40.190]
Postcentral gyrus	22.19 / 1.676 [1.453, 1.901]	10.46 / 0.790 [0.684, 0.928]	11.73 / 0.886 [0.739, 1.008]	-11.4373 [-22.350, 7.586]
Postcentral gyrus medial segment	3.17 / 0.239 [0.106, 0.204]	1.80 / 0.136 [0.050, 0.112]	1.37 / 0.103 [0.047, 0.105]	27.4400 [-36.197, 50.877]

Precuneus	22.07 / 1.667 [1.443, 1.884]	11.25 / 0.849 [0.723, 0.962]	10.82 / 0.817 [0.702, 0.950]	3.8491 [-10.426, 14.560]
Sup. parietal lobule	25.15 / 1.899 [1.413, 1.961]	12.28 / 0.928 [0.680, 0.996]	12.86 / 0.971 [0.687, 1.008]	-4.6066 [-18.344, 17.397]
Supramarginal gyrus	19.23 / 1.453 [1.107, 1.587]	9.01 / 0.681 [0.514, 0.825]	10.22 / 0.772 [0.538, 0.828]	-12.5519 [-28.807, 23.942]
Occipital lobe	73.53 / 5.553 [5.588, 6.839]	37.37 / 2.822 [2.817, 3.505]	36.16 / 2.730 [2.722, 3.395]	3.3075 [-5.188, 10.828]
Calcarine cortex	6.80 / 0.514 [0.437, 0.716]	3.61 / 0.273 [0.218, 0.363]	3.19 / 0.241 [0.212, 0.363]	12.3194 [-14.789, 19.211]
Cuneus	7.77 / 0.587 [0.601, 0.883]	3.67 / 0.277 [0.293, 0.456]	4.10 / 0.309 [0.289, 0.449]	-11.0128 [-19.403, 24.028]
Lingual gyrus	18.04 / 1.362 [1.127, 1.572]	9.04 / 0.682 [0.547, 0.819]	9.00 / 0.680 [0.548, 0.793]	0.3604 [-18.890, 21.210]
Occipital fusiform gyrus	5.54 / 0.418 [0.449, 0.740]	2.70 / 0.204 [0.197, 0.384]	2.84 / 0.214 [0.222, 0.409]	-4.9913 [-47.976, 27.370]
Inf. occipital gyrus	15.13 / 1.143 [0.861, 1.289]	7.83 / 0.591 [0.419, 0.683]	7.30 / 0.551 [0.394, 0.665]	6.9727 [-23.256, 33.659]
Middle occipital gyrus	9.25 / 0.698 [0.652, 0.994]	4.89 / 0.369 [0.318, 0.527]	4.36 / 0.329 [0.296, 0.521]	11.4058 [-25.968, 35.233]
Sup. occipital gyrus	6.15 / 0.464 [0.510, 0.805]	3.25 / 0.245 [0.264, 0.438]	2.90 / 0.219 [0.212, 0.395]	11.2500 [-13.721, 47.128]
Occipital pole	4.86 / 0.367 [0.310, 0.554]	2.40 / 0.181 [0.149, 0.283]	2.47 / 0.186 [0.143, 0.288]	-2.8862 [-31.632, 36.535]
Limbic cortex	42.71 / 3.225 [2.826, 3.374]	22.55 / 1.703 [1.350, 1.689]	20.16 / 1.522 [1.410, 1.760]	11.2149 [-17.865, 8.961]
Entorhinal area	3.75 / 0.283 [0.247, 0.396]	1.94 / 0.146 [0.122, 0.206]	1.82 / 0.137 [0.121, 0.203]	6.3805 [-24.684, 26.247]
Anterior cingulate gyrus	11.76 / 0.888 [0.640, 0.960]	6.00 / 0.453 [0.278, 0.494]	5.76 / 0.435 [0.330, 0.525]	4.1468 [-44.220, 21.159]
Middle cingulate gyrus	11.19 / 0.845 [0.653, 0.880]	6.87 / 0.519 [0.318, 0.457]	4.32 / 0.326 [0.305, 0.455]	45.6562 [-21.916, 25.538]
Posterior cingulate gyrus	8.89 / 0.672 [0.619, 0.792]	4.47 / 0.337 [0.298, 0.408]	4.43 / 0.334 [0.308, 0.403]	0.9304 [-17.408, 13.749]
Parahippocampal gyrus	7.12 / 0.538 [0.422, 0.586]	3.28 / 0.247 [0.196, 0.288]	3.84 / 0.290 [0.218, 0.307]	-15.8572 [-25.116, 4.147]
Insular cortex	28.93 / 2.185 [1.973, 2.404]	13.65 / 1.030 [0.959, 1.183]	15.28 / 1.154 [1.000, 1.234]	-11.3333 [-11.485, 2.611]
Anterior insula	8.10 / 0.612 [0.551, 0.714]	4.03 / 0.304 [0.269, 0.356]	4.07 / 0.308 [0.277, 0.364]	-1.0576 [-11.987, 6.635]
Posterior insula	4.35 / 0.329 [0.294, 0.400]	2.08 / 0.157 [0.144, 0.204]	2.27 / 0.172 [0.143, 0.201]	-8.9583 [-12.799, 16.270]
Central operculum	7.53 / 0.568 [0.490, 0.666]	3.71 / 0.281 [0.234, 0.336]	3.81 / 0.288 [0.245, 0.348]	-2.5525 [-23.471, 14.408]
Frontal operculum	3.39 / 0.256 [0.214, 0.352]	1.69 / 0.128 [0.096, 0.181]	1.69 / 0.128 [0.103, 0.182]	0.0000 [-37.033, 31.006]
Parietal operculum	5.56 / 0.420 [0.273, 0.436]	2.13 / 0.161 [0.114, 0.210]	3.43 / 0.259 [0.143, 0.243]	-46.9635 [-46.750, 10.482]

CSF	Total (cm^3 / %)	Right (cm^3 / %)	Left (cm^3 / %)	Asymmetry (%)
Inf. lateral ventricle	1.45 / 0.109 [0.029, 0.109]	0.66 / 0.050 [0.015, 0.063]	0.79 / 0.060 [0.012, 0.052]	-17.6441 [-36.695, 91.659]
Lateral ventricle	56.69 / 4.281 [0.700, 2.857]	23.58 / 1.780 [0.324, 1.409]	33.11 / 2.500 [0.362, 1.500]	-33.6339 [-41.978, 25.005]
3rd ventricle	1.50 / 0.113 [0.031, 0.117]			
4th ventricle	2.70 / 0.204 [0.074, 0.188]			
External CSF	142.09 / 10.730 [8.858, 14.708]			

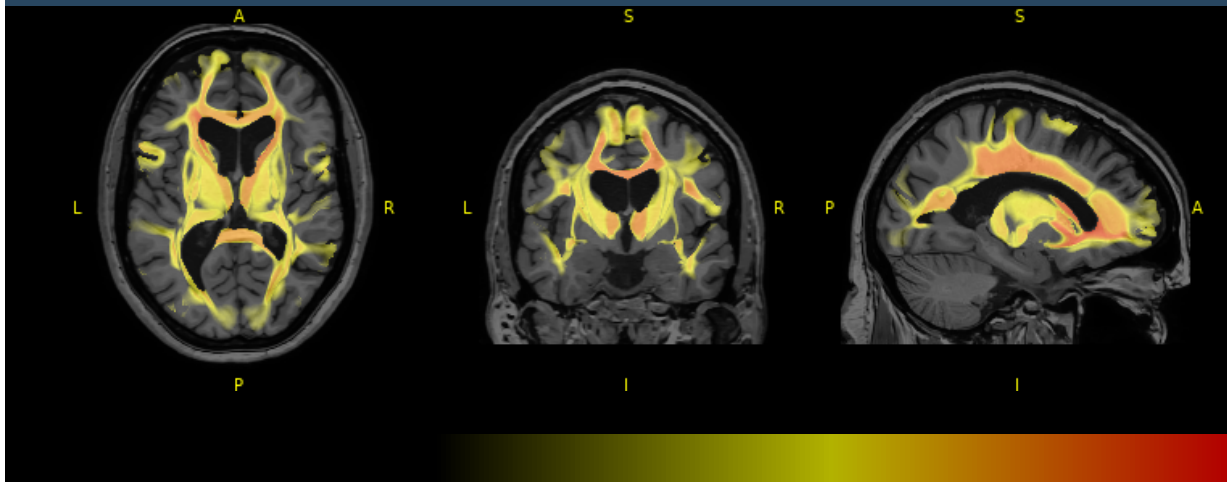
Cerebellar vermis	Total (cm^3 / %)
Lobules I-V	4.54 / 0.343 [0.337, 0.481]
Lobules VI-VII	2.11 / 0.159 [0.155, 0.238]
Lobules VIII-X	2.77 / 0.209 [0.180, 0.269]

Lesion instances



Periventricular lesions	Volume (cm^3 / %)	Lesion burden (%)
Lesion 1	5.6428 / 0.4261	1.4239
Lesion 2	4.6513 / 0.3512	1.1737
Lesion 3	3.7833 / 0.2857	0.9547
Lesion 6	0.3982 / 0.0301	0.1005
Lesion 7	0.3864 / 0.0292	0.0975
Lesion 8	0.2364 / 0.0179	0.0597
Lesion 9	0.1677 / 0.0127	0.0423
Lesion 12	0.0768 / 0.0058	0.0194
Lesion 17	0.0236 / 0.0018	0.0060
Lesion 20	0.0177 / 0.0013	0.0045
Lesion 23	0.0118 / 0.0009	0.0030
Deepwhite lesions	Volume (cm^3 / %)	Lesion burden (%)
Lesion 14	0.0643 / 0.0049	0.0162
Lesion 16	0.0443 / 0.0033	0.0112
Lesion 24	0.0081 / 0.0006	0.0021
Lesion 25	0.0081 / 0.0006	0.0021
Lesion 27	0.0059 / 0.0004	0.0015
Lesion 28	0.0037 / 0.0003	0.0009
Lesion 29	0.0037 / 0.0003	0.0009
Lesion 31	0.0022 / 0.0002	0.0006
Lesion 32	0.0007 / 0.0001	0.0002
Lesion 33	0.0007 / 0.0001	0.0002
Juxtacortical lesions	Volume (cm^3 / %)	Lesion burden (%)
Lesion 10	0.1492 / 0.0113	0.0377
Lesion 13	0.0746 / 0.0056	0.0188
Lesion 15	0.0443 / 0.0033	0.0112
Lesion 18	0.0222 / 0.0017	0.0056
Lesion 19	0.0177 / 0.0013	0.0045
Lesion 21	0.0170 / 0.0013	0.0043
Lesion 22	0.0118 / 0.0009	0.0030
Lesion 26	0.0074 / 0.0006	0.0019
Cerebellar lesions	Volume (cm^3 / %)	Lesion burden (%)
Lesion 4	0.6908 / 0.0522	0.1743
Lesion 5	0.4041 / 0.0305	0.1020
Lesion 11	0.1263 / 0.0095	0.0319

Disconnectome



Normal

Disconnection

WM tract	Disconnection probability (%)
Corticostriatal tract anterior left	92.54
Corpus callosum body	86.87
Superior longitudinal fasciculus3 right	85.16
Thalamic radiation anterior right	83.96
Thalamic radiation anterior left	82.05
Corticostriatal tract anterior right	81.90
Corpus callosum forceps minor	81.81
Arcuate fasciculus left	81.19
Corpus callosum forceps major	80.74
Inferior fronto occipital fasciculus left	77.54
Inferior longitudinal fasciculus right	77.08
Vertical occipital fasciculus left	76.39
Inferior fronto occipital fasciculus right	76.32
Corticospinal tract left	76.19
Frontal aslant tract left	76.02
Inferior longitudinal fasciculus left	75.80
Parietal aslant tract right	74.84
Parietal aslant tract left	74.78
Thalamic radiation posterior right	74.22
Thalamic radiation posterior left	74.03
Corpus callosum tapetum	73.88
Reticulospinal tract right	73.75
Thalamic radiation superior right	73.71
Corticostriatal tract posterior right	73.68
Corticospinal tract right	73.57
Corticostriatal tract superior left	73.51
Uncinate fasciculus right	73.18
Optic radiation left	73.02
Optic radiation right	71.62
Thalamic radiation superior left	71.06
Vertical occipital fasciculus right	71.01
Superior longitudinal fasciculus2 left	67.75
Corticostriatal tract posterior left	67.47

Middle longitudinal fasciculus right	67.47
Corticobulbar tract right	67.17
Corticopontine tract parietal left	67.04
Superior longitudinal fasciculus2 right	65.46
Cingulum parahippocampal parietal right	65.45
Superior longitudinal fasciculus3 left	64.98
Corticostriatal tract superior right	64.69
Arcuate fasciculus right	64.48
Uncinate fasciculus left	63.77
Reticulospinal tract left	63.09
Corticopontine tract parietal right	62.61
Superior longitudinal fasciculus1 right	61.48
Corticopontine tract frontal left	61.43
Corticopontine tract occipital right	60.31
Corticopontine tract occipital left	59.37
Corticopontine tract frontal right	57.92
Frontal aslant tract right	57.56
Superior longitudinal fasciculus1 left	57.41
Corticobulbar tract left	56.02
Middle longitudinal fasciculus left	54.55
Cingulum rorolfactory right	0.00
Cingulum rorolfactory left	0.00
Cingulum parahippocampal right	0.00
Fornix right	0.00
Cingulum parahippocampal parietal left	0.00
Cingulum parahippocampal left	0.00
Cingulum frontal parietal right	0.00
Cingulum frontal parietal left	0.00
Cingulum frontal parahippocampal right	0.00
Cingulum frontal parahippocampal left	0.00
Fornix left	0.00