Table e-1: Correlation matrix in full cohort.

	Nodular count	**Spread/fill-sulcal**	**Spread/fill-gyral**	**Spread/fill-infratentorial**	**Spread/fill count**	**LME - Any count**
Leukocortical CL Count	0.02	0.28	-0.07	-0.04	0.11	0.09
Leukocortical CL Volume	0.14	0.16	-0.02	-0.11	0.08	0.11
Intracortical CL Count	-0.05	0.22	-0.08	-0.15	0.08	0.04
Intracortical CL Volume	0.02	0.12	-0.11	-0.21	<0.01	-0.01
Subpial CL Count	<-0.01	-0.03	-0.12	-0.20	-0.09	-0.10
Subpial CL Volume	-0.02	-0.01	-0.01	-0.20	-0.03	-0.03
Hippocampal CL Count	-0.02	**0.32***	0.11	0.08	0.21	0.17
Hippocampal CL Volume	-0.02	0.27	0.10	0.05	0.17	0.14
Total CL Count	<0.01	0.27	-0.06	-0.08	0.11	0.09
Total CL Volume	0.05	0.17	0.03	-0.16	0.11	0.11
Cortical GM Volume	-0.18	-0.27	-0.06	-0.23	-0.20	-0.23
Mean Cortical Thickness	0.19	**-0.39***	**-0.37***	-0.29	**-0.51****	**-0.43****
Cerebral WM Volume	0.03	0.11	0.24	**0.38***	0.24	0.24
WM Lesion Volume	0.14	0.22	0.07	0.06	0.13	0.16

Spearman correlation ρ value shown. All volumes were normalized to intracranial volume to adjust for head size prior to performing correlation testing. CL = cortical lesion. GM = gray matter. WM = white matter. LME = leptomeningeal enhancement. * = $p < 0.05$. ** = $p < 0.01$.

Table e-2: Comparison of CLs and segmented volumes in those with > 1 foci versus ≤ 1 foci of LME in full cohort.

	Nodular		**Spread/fill-sulcal**		**Spread/fill-gyral**		**Spread/fill-infratentorial**		**Spread/fill-All**		**Any LME**	
	> 1	**≤ 1**	**> 1**	**≤ 1**	**> 1**	**≤ 1**	**> 1**	**≤ 1**	**> 1**	**≤ 1**	**> 1**	**≤ 1**
Leukocortical Count	16 (6 – 69)	17 (2 – 69)	19 (6 – 69)	16 (2 – 39)	15.5 (2 – 69)	19 (2 – 39)	N/A	17 (2 – 69)	16 (2 – 69)	17.5 (2 – 39)	16 (2 – 69)	19.5 (2 – 39)
Leukocortical CL Volume	254.1 (100.7 – 350.9)	181.2 (18.2 – 515.6)	213.2 (56.0 – 503.6)	182.6 (18.2 – 515.6)	179.9 (18.2 – 429.1)	183.6 (36.1 – 515.6)	N/A	183.6 (18.2 – 515.6)	198.1 (18.2 – 503.6)	181.2 (36.1 – 515.6)	198.1 (18.2 – 503.6)	181.2 (36.1 – 515.6)
Intracortical CL Count	4 (0 – 10)	4 (0 – 130	5.5 (0 – 13)	4 (0 – 12)	3.5 (0 – 13)	5 (0 – 12)	N/A	4 (0 – 13)	4 (0 – 13)	4.5 (0 – 12)	4 (0 – 13)	5 (0 – 12)
Intracortical CL Volume	33.5 (0 – 52.7)	21.7 (0 – 91.1)	24.5 (0 – 91.1)	22.5 (0 – 70.9)	20.4 (0 – 91.1)	27.2 (0 – 58.3)	N/A	22.5 (0 – 91.1)	22.5 (0 – 91.1)	24.7 (0 – 57.0)	22.5 (0 – 91.1)	24.7 (0 – 57.0)
Subpial CL Count	2 (0 – 6)	2 (0 – 7)	1.5 (0 – 6)	2 (0 – 7)	1.5 (0 – 6)	2 (0 – 7)	N/A	2 (0 – 7)	1 (0 – 6)	3 (0 – 7)	1 (0 – 6)	3 (0 – 7)
Subpial CL Volume	97.4 (0 – 148.8)	47.7 (0 – 708.70	63.5 (0 – 215.4)	45.4 (0 – 708.7)	63.5 (0 – 215.4)	45.4 (0 – 708.7)	N/A	50.0 (0 – 708.7)	18.9 (0 – 215.4)	71.6 (0 – 708.7)	18.9 (0 – 215.4)	71.6 (0 – 708.7)
Hippocampal CL Count	0 (0 -2)	1 (0 – 7)	1.5 (0 – 7)	1 (0 – 6)	1.5 (0 – 7)	1 (0 – 6)	N/A	1 (0 – 7)	1 (0 – 7)	1 (0 – 5)	1 (0 – 7)	1 (0 – 5)
Hippocampal CL Volume	0 (0 – 13.9)	0 0 – 1)	21.2 (0 – 99.1)	7.3 (0 – 172.0)	15.7 (0 – 155.7)	6.6 (0 – 172.0)	N/A	9.3 (0 – 172.0)	13.9 (0 – 155.7)	7.0 (0 – 172.0)	9.6 (0 – 155.7)	7.0 (0 – 172.0)
Total CL Count	24 (8 – 69)	23 (2 – 82)	27 (6 – 82)	23 (2 – 54)	22.5 (2 – 82)	25 (2 – 54)	N/A	23 (2 – 82)	23 (2 – 82)	23.5 (2 – 54)	23 (2 – 82)	25 (2 – 54)
Total CL Volume	373.4 (114.6 – 529.5)	299.9 (18.2 – 1356.5)	367.8 (56.0 – 641.1)	290.3 (18.2 – 1356.5)	350.4 (18.2 – 641.1)	296.2 (36.1 – 1356.5)	N/A	323.7 (18.2 – 1356.5)	367.1 (18.2 – 641.1)	285.8 (36.1 – 1356.5)	367.1 (18.2 – 641.1)	285.8 (36.1 – 1356.5)
Cortical GM Volume	475671.6 (427561.5 – 519537.1)	471702.3 (400895.9 – 555095.6)	468096.8 (400895.9 – 555095.6)	471934.3 (425828.3 – 425828.3)	464201.4 (400895.9 – 507250.3)	486036.3 (425828.3 – 555095.6)	N/A	471934.3 (400895.9 – 555095.6)	471934.3 (400895.9 – 555095.6)	478753.2 (425828.3 – 523555.3)	471934.3 (400895.9 – 555095.6)	478753.2 (425828.3 – 523555.3)
Mean Cortical Thickness	3.42 (3.27 –	3.41 (3.09 –	**3.30 (3.11 –**	**3.43* (3.09 –**	**3.35 (3.12 –**	**3.46* (3.09 –**	N/A	3.41 (3.09 –	**3.36 (3.11 –**	**3.47* (3.09 –**	3.39 (3.11 –	3.47 (3.09 –

	3.47)	3.65)	**3.54)**	**3.65)**	**3.54)**	**3.65)**		3.65)	**3.56)**	**3.65)**	3.56)	3.65)
Cerebral WM Volume	430617.5 (376683.5 – 533693)	445930.8 (373890.3 – 544424.1)	450680.2 (378126.2 – 544424.1)	445505.9 (373890.3 – 540483.4)	444209.8 (373890.3 – 544424.1)	446208.8 (381180.8 – 528407.4)	N/A	445652.8 (373890.3 – 544424.1)	445652.8 (373890.3 – 544424.1)	450383.1 (381180.8 – 528407.4)	446208.8 (373890.3 – 544424.1)	444363.8 (381180.8 – 528407.4)
WM Lesion Volume	5320.0 (2091.8 – 18380.5)	2771.7 (51.7 – 19385.8)	4955.4 (1007.3 – 19175.7)	2747.5 (51.7 – 19385.8)	4569.0 (175.3 – 19175.7)	2747.5 (51.7 – 19385.8)	N/A	2821.4 (51.7 – 19385.8)	3332.3 (175.3 – 19175.7)	2753.6 (51.7 – 19385.8)	3332.3 (175.3 – 19175.7)	2717.2 (51.7 – 19385.8)

Median (range) values shown. Raw volumes (mm^3) shown, but normalized values used for statistical comparisons. Mean cortical thickness in mm. Wilcoxon rank sum testing for comparisons between groups. CL = cortical lesion. GM = gray matter. WM = white matter. LME = leptomeningeal enhancement. N/A = not applicable (no participants had > 1 spread/fill-infratentorial foci). * = $p < 0.05$. ** = $p < 0.01$.

Figure e-1: Examples of hippocampal lesions.

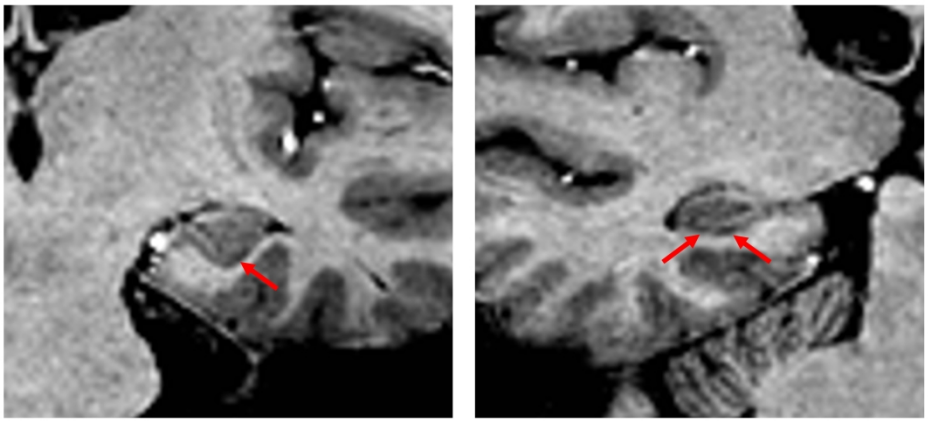
Shown are two examples of MP2RAGE T1-w images (zoomed, cropped) with red arrows indicating hippocampal lesions.

Figure e-2: Scatter plots for correlation analyses in the full cohort.

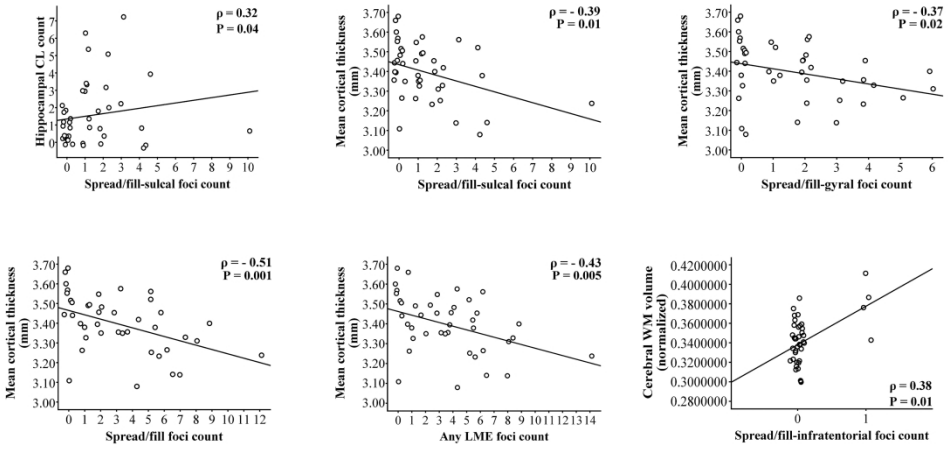
Scatter plots with lines of best fit shown for all significant correlations found in correlation analysis. Spearman rho (ρ) values and levels of significance shown in each plot.

Figure e-3: Scatter plots for correlation analyses in the RRMS subjects only.

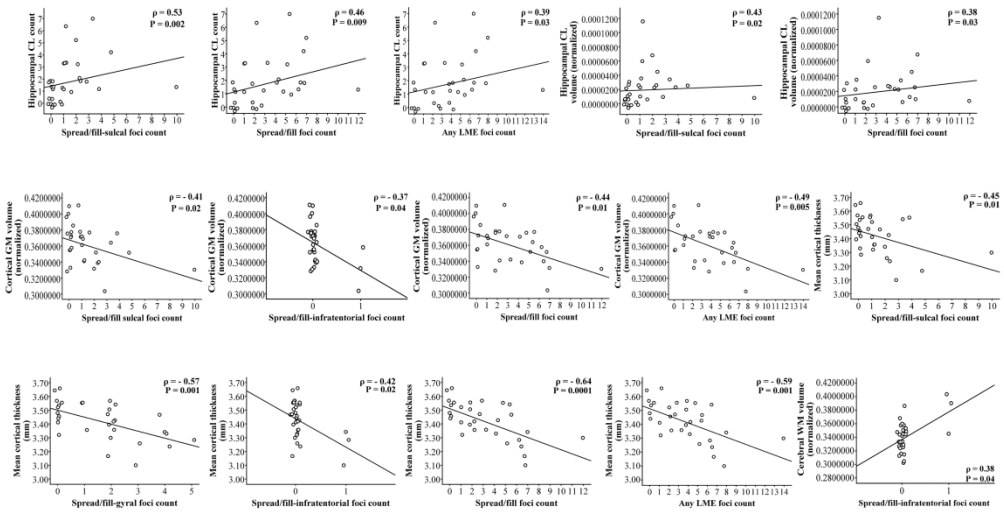
Scatter plots with lines of best fit shown for all significant correlations found in correlation analysis. Spearman rho (ρ) values and levels of significance shown in each plot.



338x190mm (300 x 300 DPI)



338x190mm (300 x 300 DPI)



338x190mm (300 x 300 DPI)