SUPPLEMENTARY MATERIAL

Premotor dorsal white matter integrity for the prediction of upper limb motor impairment after stroke

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Part I. How to calculate lesion load

Online Table I. Script for lesion load

Step		Code	Notes
1	Place tract images and subject images in the same folder		
2	Create text file with all tracts and subjects	ls -1 *.nii > images.txt	lists all nifti files in directory and outputs to a text file
3	Create array of subject IDs	subj=(sub001 sub002 sub003 sub004 sub005 sub006 sub007 sub008)	This can be copied from the text file (after removing the extensions)
4	Create array of tract names	voi=(10_SMATT 11_M1 12_preSMA 13_SMA 14_PMD 15_PMV 1_TCT 2_S1 3_INSULA 4_BG 5_Caudate 6_Putamen 7_GPi 8_GPe 9_STN)	Similar to previous step. An easy way to do this is to open the images.txt file in Excel and replace the string .nii
5	Nested loop to intersect tracts and subject lesions and output number of overlapping voxels	for i in {0..14} ; do for j in {0..7} ; do fslstats ./${subj[j]}.nii -k ./${voi[i]}.nii -V >> ./${voi[i]}.txt ; done ; done	Adapt brace expansions for i (number of tracts), j (number of subjects). Output is one text file for each tract, with each subject value on new line

Scripts are available for UNIX systems using BASH shell and FSL software

Online Table II. Script for weighted lesion load

Step		Code	Notes
1	Place tract images and subject images in the same folder		
2	Create text file with all tracts and subjects	ls -1 *.nii > images.txt	lists all nifti files in directory and outputs to a text file
3	While loop to slice all images along the z axis	while read p ; do mkdir ./Results/${p:0: -4} ; fslslice $p ./Results/${p:0: -4}/${p:0: -4} ; done < images.txt	reads text file and for each line performs image slicing and outputs to a separate folder for each image
4	While loop to extract number of non-zero voxels per slice (tracts and subjects)	while read p ; do for i in {0000..0181}; do fslstats ./Results/${p:0: -4}/${p:0: -4}_slice_${i}.nii -V >> ./Results/${p:0: -4}/${p:0: -4}.txt ; done ; done < images.txt	Number in brace expansion should be adapted for number of Z slices in the images, here Z = 182
5	Create array of subject IDs	subj=(sub001 sub002 sub003 sub004 sub005 sub006 sub007 sub008)	This can be copied from the text file (after removing the extensions)
6	Create array of tract names	voi=(Right-M1-S-MATT Right-PMd-S-MATT Right-PMv-S-MATT Right-preSMA-S-MATT Right-S1-S-MATT Right-SMA-S-MATT S-MATT)	Similar to previous step. An easy way to do this is to open the images.txt file in Excel and replace the string .nii
7	Nested loop to intersect corresponding slices of tract and subjects lesion and output number of overlapping voxelsoutput number of overlapping voxels	for i in {0..7} ; do for j in {0..6}; do for k in {0000..0181} ; do fslstats ./Results/${subj[i]}/${subj[i]}_slice_$k.nii -k ./Results/${voi[j]}/${voi[j]}_slice_$k.nii -V >> ./Results/${subj[i]}/${voi[j]}.txt ; done ; done ; done	Adapt brace expansions for i (number of subjects), j (number of tracts), k (number of Z slices). Output is one text file for each subject for each region with each slice value on a new line.

Scripts are available for UNIX systems using BASH shell and FSL software

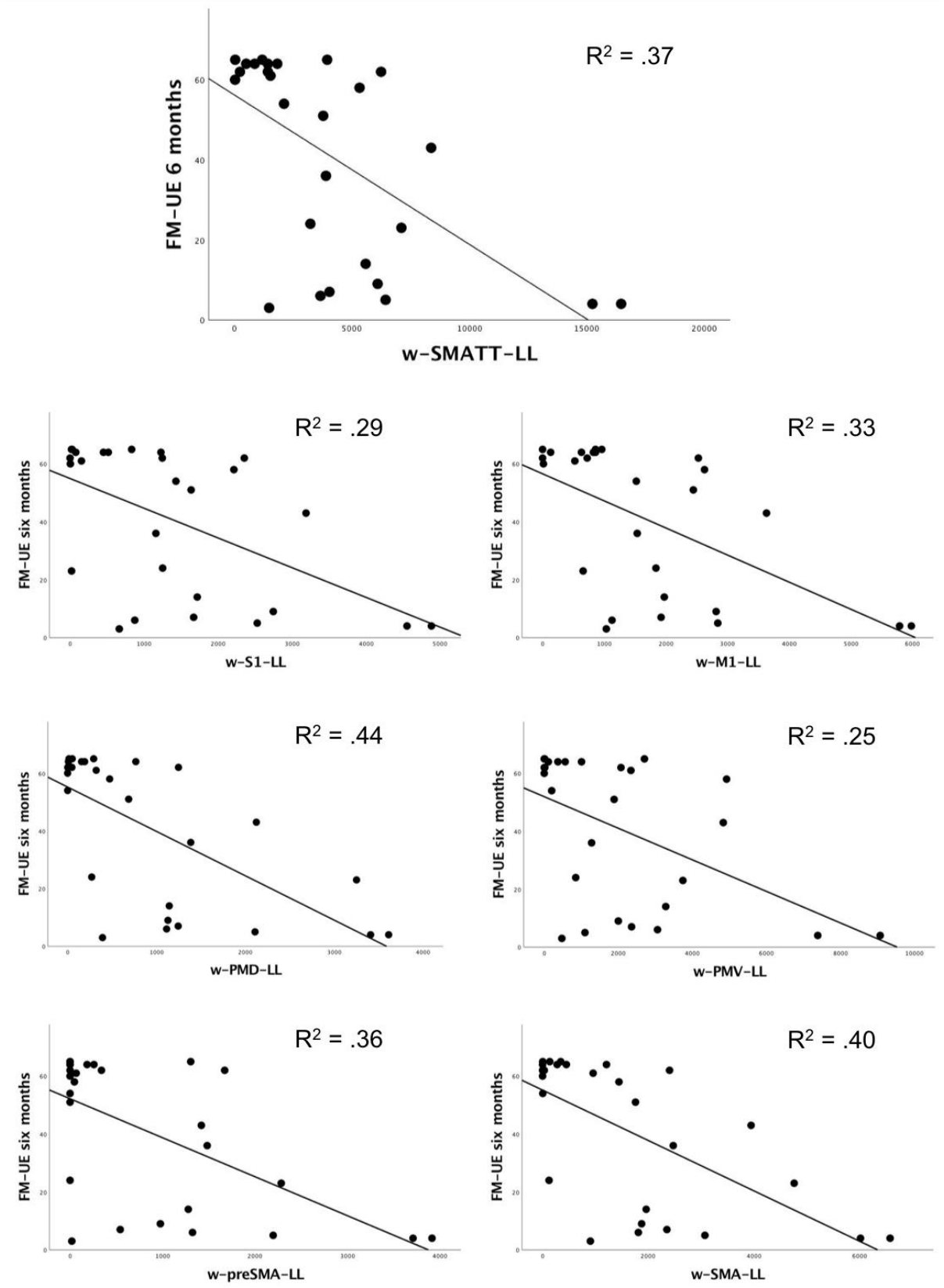
Part II. Univariate regression analysis

Online Table III. Univariate regression analysis

Univariate predictor	R	R_2	Adjusted R_2	SEE	*p*
FM-UE one week	.82	.68	.67	14.62	<.001
Age (dichotomized)	.01	.00	-.04	25.87	.936
w-SMATT-LL	.60	.37	.34	20.60	.001
w-PMD-LL	.66	.44	.41	19.44	<.001
w-SMA-LL	.64	.40	.38	19.97	<.001
w-preSMA-LL	.60	.36	.33	20.72	.001
w-M1-LL	.57	.33	.30	21.20	.002
w-S1-LL	.54	.29	.26	21.81	.004
w-PMV-LL	.50	.25	.22	22.44	.008

FM-UE indicates Fugl-Meyer Upper Extremity assessment; SEE: Standardized Error of the Estimate; w-(x)-LL: weighted lesion load within CST sub-pathways descending from primary motor cortex (M1), premotor dorsal area (PMD), premotor ventral area (PMV), pre-supplementary motor area (preSMA), supplementary motor area (SMA) and primary somatosensory cortex (S1).

Online Figure I. Scatterplot representing univariate regression analysis



Scatterplots representing univariate regression analyses for the prediction of motor impairment at six months post stroke (y-axis), with weighted lesion load of each sub-pathway within CST as independent variable (x-axis).

Part III. Dominance analysis

Main dominance analysis output (as from https://sites.uwm.edu/azen/damacros/).

Note: data relevant for the present study have been highlighted in yellow.

Variable	DF	Parameter Estimate	SE	t	Pr > |t|	Standardized Estimate	Squared Semi-partial Corr Type II	Squared Partial Corr Type II
Intercept	1	60.49685	5.81552	10.40	<.0001	0	.	.
w_SMATT	1	0.01950	0.01117	1.74	0.0972	3.16276	0.06687	0.13809
w_PMD	1	-0.09523	0.03799	-2.51	0.0214	-4.08458	0.13804	0.24853
w_PMV	1	-0.00859	0.00690	-1.25	0.2279	-0.78491	0.03411	0.07554
w_M1	1	-0.03778	0.01841	-2.05	0.0542	-2.31270	0.09252	0.18146
w_preSMA	1	-0.00492	0.01288	-0.38	0.7066	-0.21873	0.00321	0.00763
w_SMA	1	0.04114	0.02081	1.98	0.0628	3.00428	0.08585	0.17060
w_S1	1	0.00484	0.01277	0.38	0.7088	0.25379	0.00316	0.00751

IN	RSQ	CP2	CP3	CP4	CP5	CP6	CP7		
0	**.0000**	.4357	.2476	.3284	.3585	.4043	.2897		
1	**.3660**	.0698	.0239	.0005	.0129	.0394	.0000		
1	**.4357**	.	.0040	.0125	.0015	.0073	.0098		
1	**.2476**	.1920	.	.0822	.1119	.1657	.0586		
1	**.3284**	.1198	.0015	.	.0632	.0848	.0065		
1	**.3585**	.0787	.0010	.0331	.	.0484	.0233		
1	**.4043**	.0387	.0090	.0089	.0027	.	.0068		
1	**.2897**	.1557	.0165	.0452	.0921	.1214	.		
2	**.4358**	.	.0123	.0557	.0024	.0116	.0281		
2	**.3900**	.0582	.	.0002	.0057	.0391	.0031		
2	**.3665**	.1250	.0236	.	.0280	.0535	.0024		
2	**.3790**	.0593	.0167	.0155	.	.0281	.0037		
2	**.4054**	.0421	.0237	.0146	.0017	.	.0083		
2	**.3661**	.0979	.0270	.0028	.0165	.0476	.		
2	**.4397**	.	.	.0323	.0007	.0035	.0216		
2	**.4482**	.	.0237	.	.0044	.0391	.0004		
2	**.4372**	.	.0031	.0154	.	.0083	.0125		
2	**.4430**	.	.0002	.0443	.0025	.	.0286		
2	**.4454**	.	.0158	.0032	.0042	.0262	.		
2	**.3299**	.1420	.	.	.0696	.1065	.0053		
2	**.3595**	.0808	.	.0399	.	.0575	.0243		
2	**.4133**	.0299	.	.0230	.0036	.	.0155		
2	**.3062**	.1550	.	.0290	.0776	.1226	.		
2	**.3916**	.0610	.0078	.	.	.0235	.0031		
2	**.4132**	.0742	.0232	.	.0020	.	.0003		
2	**.3349**	.1137	.0003	.	.0598	.0786	.		
2	**.4069**	.0385	.0100	.0082	.	.	.0059		
2	**.3818**	.0678	.0021	.0129	.	.0311	.		
2	**.4111**	.0606	.0177	.0024	.0018	.	.		
3	**.4481**	.	.	.0435	.0055	.0050	.0170		
3	**.4915**	.	.0002	.	.0039	.0499	.0008		
3	**.4383**	.	.0154	.0571	.	.0218	.0257		
3	**.4475**	.	.0056	.0939	.0126	.	.0364		

3	**.4639**	.	.0012	.0283	.0000	.0199	.		
3	**.3901**	.1015	.	.	.0098	.0463	.0072		
3	**.3956**	.0580	.	.0043	.	.0335	.0001		
3	**.4291**	.0240	.	.0073	.0000	.	.0018		
3	**.3931**	.0721	.	.0043	.0026	.0378	.		
3	**.3944**	.1009	.0055	.	.	.0438	.0042		
3	**.4200**	.1214	.0165	.	.0183	.	.0002		
3	**.3689**	.1234	.0285	.	.0298	.0513	.		
3	**.4071**	.0530	.0220	.0312	.	.	.0142		
3	**.3826**	.0813	.0131	.0160	.	.0387	.		
3	**.4137**	.0701	.0172	.0065	.0076	.	.		
3	**.4719**	.	.	.	.0025	.0221	.0031		
3	**.4403**	.	.	.0341	.	.0052	.0235		
3	**.4432**	.	.	.0508	.0023	.	.0314		
3	**.4613**	.	.	.0137	.0025	.0134	.		
3	**.4526**	.	.0218	.	.	.0555	.0003		
3	**.4873**	.	.0066	.	.0207	.	.0048		
3	**.4486**	.	.0263	.	.0042	.0435	.		
3	**.4455**	.	.0000	.0626	.	.	.0404		
3	**.4496**	.	.0142	.0032	.	.0362	.		
3	**.4716**	.	.0030	.0205	.0142	.	.		
3	**.3994**	.0750	.	.	.	.0398	.0065		
3	**.4364**	.0576	.	.	.0029	.	.0020		
3	**.3352**	.1398	.	.	.0707	.1032	.		
3	**.4170**	.0285	.	.0223	.	.	.0143		
3	**.3838**	.0800	.	.0221	.	.0474	.		
3	**.4288**	.0458	.	.0096	.0025	.	.		
3	**.4151**	.0930	.0241	.	.	.	.0005		
3	**.3947**	.0582	.0112	.	.	.0209	.		
3	**.4135**	.0787	.0249	.	.0021	.	.		
3	**.4129**	.0730	.0184	.0027	.	.	.		
4	**.4916**	.	.	.	.0042	.0845	.0011		
4	**.4536**	.	.	.0422	.	.0127	.0118		
4	**.4531**	.	.	.1230	.0132	.	.0334		
4	**.4651**	.	.	.0275	.0003	.0214	.		

4	**.4954**	.	.0004	.	.	.0462	.0013		
4	**.5413**	.	.0348	.	.0002	.	.0071		
4	**.4922**	.	.0004	.	.0044	.0561	.		
4	**.4600**	.	.0063	.0815	.	.	.0287		
4	**.4640**	.	.0015	.0327	.	.0248	.		
4	**.4838**	.	.0027	.0645	.0049	.	.		
4	**.4000**	.0958	.	.	.	.0426	.0067		
4	**.4364**	.1397	.	.	.0062	.	.0021		
4	**.3973**	.0953	.	.	.0093	.0412	.		
4	**.4291**	.0372	.	.0135	.	.	.0024		
4	**.3957**	.0697	.	.0109	.	.0358	.		
4	**.4309**	.0556	.	.0077	.0006	.	.		
4	**.4383**	.1033	.0043	.	.	.	.0009		
4	**.3986**	.0980	.0080	.	.	.0405	.		
4	**.4202**	.1282	.0184	.	.0190	.	.		
4	**.4213**	.0675	.0102	.0179	.	.	.		
4	**.4745**	.	.	.	.	.0354	.0025		
4	**.4940**	.	.	.	.0159	.	.0066		
4	**.4750**	.	.	.	.0020	.0256	.		
4	**.4455**	.	.	.0644	.	.	.0407		
4	**.4638**	.	.	.0132	.	.0224	.		
4	**.4746**	.	.	.0260	.0116	.	.		
4	**.5081**	.	.0018	.	.	.	.0049		
4	**.4529**	.	.0241	.	.	.0601	.		
4	**.4922**	.	.0084	.	.0208	.	.		
4	**.4859**	.	.0003	.0271	.	.	.		
4	**.4393**	.0706	.	.	.	.	.0027		
4	**.4059**	.0711	.	.	.	.0360	.		
4	**.4384**	.0622	.	.	.0035	.	.		
4	**.4313**	.0549	.	.0106	.	.	.		
4	**.4156**	.0974	.0263	.	.	.	.		
5	**.4958**	.	.	.	.	.0837	.0010		
5	**.5761**	.	.	.	.0033	.	.0033		
5	**.4927**	.	.	.	.0041	.0867	.		
5	**.4663**	.	.	.1132	.	.	.0238		

5	**.4655**	.	.	.0313	.	.0247	.		
5	**.4865**	.	.	.0929	.0036	.	.		
5	**.5416**	.	.0379	.	.	.	.0070		
5	**.4966**	.	.0001	.	.	.0519	.		
5	**.5484**	.	.0310	.	.0001	.	.		
5	**.4888**	.	.0013	.0598	.	.	.		
5	**.4426**	.1369	.	.	.	.	.0020		
5	**.4066**	.0902	.	.	.	.0380	.		
5	**.4386**	.1409	.	.	.0060	.	.		
5	**.4315**	.0586	.	.0131	.	.	.		
5	**.4392**	.1093	.0054	.	.	.	.		
5	**.5099**	.	.	.	.	.	.0059		
5	**.4770**	.	.	.	.	.0388	.		
5	**.5006**	.	.	.	.0152	.	.		
5	**.4862**	.	.	.0296	.	.	.		
5	**.5130**	.	.0028	.	.	.	.		
5	**.4419**	.0739	.	.	.	.	.		
6	**.5795**	.	.	.	.	.	.0032		
6	**.4968**	.	.	.	.	.0858	.		
6	**.5794**	.	.	.	.0032	.	.		
6	**.4901**	.	.	.0925	.	.	.		
6	**.5485**	.	.0341	.	.	.	.		
6	**.4446**	.1380	.	.	.	.	.		
6	**.5158**	.	.	.	.	.	.		
IN	**w_SMATT**	**w_PMD**	**w_PMV**	**w_M1**	**w_preSMA**	**w_SMA**	**w_S1**		
*****	.0822	.1464	.0488	.0846	.0645	.1061	.0500		
0	.3660	.4357	.2476	.3284	.3585	.4043	.2897		
1	.0464	.1091	.0093	.0304	.0474	.0778	.0175		
2	.0215	.0804	.0138	.0200	.0187	.0451	.0109		
3	.0180	.0768	.0138	.0267	.0107	.0368	.0117		
4	.0213	.0831	.0099	.0375	.0077	.0390	.0102		
5	.0351	.1016	.0131	.0566	.0054	.0539	.0072		
6	.0669	.1380	.0341	.0925	.0032	.0858	.0032		

VAR	_LABEL_	OVERALL	size0	size1	size2	size3	size4	size5	size6
w_PMD	w_PMD	.1464	.4357	.1091	.0804	.0768	.0831	.1016	.1380
w_SMA	w_SMA	.1061	.4043	.0778	.0451	.0368	.0390	.0539	.0858
w_M1	w_M1	.0846	.3284	.0304	.0200	.0267	.0375	.0566	.0925
w_SMATT	w_SMATT	.0822	.3660	.0464	.0215	.0180	.0213	.0351	.0669
w_preSMA	w_preSMA	.0645	.3585	.0474	.0187	.0107	.0077	.0054	.0032
w_S1	w_S1	.0500	.2897	.0175	.0109	.0117	.0102	.0072	.0032
w_PMV	w_PMV	.0488	.2476	.0093	.0138	.0138	.0099	.0131	.0341

You requested	1000	bootstrap samples

Note:
X_1 = w-SMATT-LL
X_2 = w-PMD-LL
X_3 = w-PMV-LL
X_4 = w-M1-LL
X_5 = w-preSMA-LL
X_6 = w-SMA-LL
X_7 = w-S1-LL

Obs	dominance	I	J	Dij	Dij_mean	Dij_se	PIJ	PJI	Pijno	reprod
1	complete	1	2	0.0	0.4865	0.087	0.002	0.029	0.969	0.029
2	complete	1	3	0.5	0.4035	0.197	0.000	0.193	0.807	0.807
3	complete	1	4	0.5	0.5020	0.045	0.006	0.002	0.992	0.992
4	complete	1	5	0.5	0.4990	0.022	0.000	0.002	0.998	0.998
5	complete	1	6	0.5	0.4940	0.054	0.000	0.012	0.988	0.988
6	complete	1	7	0.5	0.5020	0.032	0.004	0.000	0.996	0.996
7	complete	2	1	1.0	0.5135	0.087	0.029	0.002	0.969	0.029
8	complete	2	3	1.0	0.4225	0.186	0.004	0.159	0.837	0.004
9	complete	2	4	1.0	0.5105	0.085	0.025	0.004	0.971	0.025
10	complete	2	5	1.0	0.5085	0.075	0.020	0.003	0.977	0.020
11	complete	2	6	1.0	0.4970	0.059	0.004	0.010	0.986	0.004
12	complete	2	7	1.0	0.5315	0.124	0.064	0.001	0.935	0.064
13	complete	3	1	0.5	0.5965	0.197	0.193	0.000	0.807	0.807
14	complete	3	2	0.0	0.5775	0.186	0.159	0.004	0.837	0.004
15	complete	3	4	0.5	0.6245	0.220	0.252	0.003	0.745	0.745
16	complete	3	5	0.5	0.6565	0.238	0.319	0.006	0.675	0.675
17	complete	3	6	0.5	0.7505	0.251	0.502	0.001	0.497	0.497

18	complete	3	7	0.5	0.6290	0.219	0.258	0.000	0.742	0.742
19	complete	4	1	0.5	0.4980	0.045	0.002	0.006	0.992	0.992
20	complete	4	2	0.0	0.4895	0.085	0.004	0.025	0.971	0.025
21	complete	4	3	0.5	0.3755	0.220	0.003	0.252	0.745	0.745
22	complete	4	5	0.5	0.5020	0.074	0.013	0.009	0.978	0.978
23	complete	4	6	0.5	0.4760	0.118	0.005	0.053	0.942	0.942
24	complete	4	7	0.5	0.5035	0.047	0.008	0.001	0.991	0.991
25	complete	5	1	0.5	0.5010	0.022	0.002	0.000	0.998	0.998
26	complete	5	2	0.0	0.4915	0.075	0.003	0.020	0.977	0.020
27	complete	5	3	0.5	0.3435	0.238	0.006	0.319	0.675	0.675
28	complete	5	4	0.5	0.4980	0.074	0.009	0.013	0.978	0.978
29	complete	5	6	0.5	0.4870	0.097	0.006	0.032	0.962	0.962
30	complete	5	7	0.5	0.5075	0.061	0.015	0.000	0.985	0.985
31	complete	6	1	0.5	0.5060	0.054	0.012	0.000	0.988	0.988
32	complete	6	2	0.0	0.5030	0.059	0.010	0.004	0.986	0.004
33	complete	6	3	0.5	0.2495	0.251	0.001	0.502	0.497	0.497
34	complete	6	4	0.5	0.5240	0.118	0.053	0.005	0.942	0.942
35	complete	6	5	0.5	0.5130	0.097	0.032	0.006	0.962	0.962
36	complete	6	7	0.5	0.5190	0.096	0.038	0.000	0.962	0.962
37	complete	7	1	0.5	0.4980	0.032	0.000	0.004	0.996	0.996
38	complete	7	2	0.0	0.4685	0.124	0.001	0.064	0.935	0.064
39	complete	7	3	0.5	0.3710	0.219	0.000	0.258	0.742	0.742
40	complete	7	4	0.5	0.4965	0.047	0.001	0.008	0.991	0.991

41	complete	7	5	0.5	0.4925	0.061	0.000	0.015	0.985	0.985
42	complete	7	6	0.5	0.4810	0.096	0.000	0.038	0.962	0.962
43	condition	1	2	0.0	0.5025	0.282	0.161	0.156	0.683	0.156
44	condition	1	3	1.0	0.1755	0.246	0.007	0.656	0.337	0.007
45	condition	1	4	0.5	0.6865	0.254	0.385	0.012	0.603	0.603
46	condition	1	5	0.5	0.5950	0.245	0.233	0.043	0.724	0.724
47	condition	1	6	0.0	0.3390	0.253	0.019	0.341	0.640	0.341
48	condition	1	7	1.0	0.7365	0.253	0.476	0.003	0.521	0.476
49	condition	2	1	1.0	0.4975	0.282	0.156	0.161	0.683	0.156
50	condition	2	3	1.0	0.2200	0.276	0.029	0.589	0.382	0.029
51	condition	2	4	1.0	0.6620	0.265	0.355	0.031	0.614	0.355
52	condition	2	5	1.0	0.5815	0.240	0.210	0.047	0.743	0.210
53	condition	2	6	1.0	0.3780	0.273	0.057	0.301	0.642	0.057
54	condition	2	7	1.0	0.8085	0.262	0.636	0.019	0.345	0.636
55	condition	3	1	0.0	0.8245	0.246	0.656	0.007	0.337	0.007
56	condition	3	2	0.0	0.7800	0.276	0.589	0.029	0.382	0.029
57	condition	3	4	0.0	0.8780	0.222	0.762	0.006	0.232	0.006
58	condition	3	5	0.5	0.8840	0.226	0.781	0.013	0.206	0.206
59	condition	3	6	0.0	0.8730	0.233	0.760	0.014	0.226	0.014
60	condition	3	7	0.5	0.9095	0.198	0.823	0.004	0.173	0.173
61	condition	4	1	0.5	0.3135	0.254	0.012	0.385	0.603	0.603
62	condition	4	2	0.0	0.3380	0.265	0.031	0.355	0.614	0.355
63	condition	4	3	1.0	0.1220	0.222	0.006	0.762	0.232	0.006

64	conditio	4	5	0.5	0.4805	0.173	0.041	0.080	0.879	0.879
65	conditio	4	6	0.5	0.2505	0.263	0.013	0.512	0.475	0.475
66	conditio	4	7	1.0	0.5230	0.158	0.074	0.028	0.898	0.074
67	conditio	5	1	0.5	0.4050	0.245	0.043	0.233	0.724	0.724
68	conditio	5	2	0.0	0.4185	0.240	0.047	0.210	0.743	0.210
69	conditio	5	3	0.5	0.1160	0.226	0.013	0.781	0.206	0.206
70	conditio	5	4	0.5	0.5195	0.173	0.080	0.041	0.879	0.879
71	conditio	5	6	0.0	0.2630	0.272	0.023	0.497	0.480	0.497
72	conditio	5	7	0.5	0.5720	0.231	0.189	0.045	0.766	0.766
73	conditio	6	1	1.0	0.6610	0.253	0.341	0.019	0.640	0.341
74	conditio	6	2	0.0	0.6220	0.273	0.301	0.057	0.642	0.057
75	conditio	6	3	1.0	0.1270	0.233	0.014	0.760	0.226	0.014
76	conditio	6	4	0.5	0.7495	0.263	0.512	0.013	0.475	0.475
77	conditio	6	5	1.0	0.7370	0.272	0.497	0.023	0.480	0.497
78	conditio	6	7	1.0	0.7975	0.255	0.604	0.009	0.387	0.604
79	conditio	7	1	0.0	0.2635	0.253	0.003	0.476	0.521	0.476
80	conditio	7	2	0.0	0.1915	0.262	0.019	0.636	0.345	0.636
81	conditio	7	3	0.5	0.0905	0.198	0.004	0.823	0.173	0.173
82	conditio	7	4	0.0	0.4770	0.158	0.028	0.074	0.898	0.074
83	conditio	7	5	0.5	0.4280	0.231	0.045	0.189	0.766	0.766
84	conditio	7	6	0.0	0.2025	0.255	0.009	0.604	0.387	0.604
85	general	1	2	0.0	0.5100	0.500	0.510	0.490	0.000	0.490
86	general	1	3	1.0	0.0560	0.230	0.056	0.944	0.000	0.056

87	general	1	4	0.0	0.9210	0.270	0.921	0.079	0.000	0.079
88	general	1	5	1.0	0.7000	0.458	0.700	0.300	0.000	0.700
89	general	1	6	0.0	0.1850	0.388	0.185	0.815	0.000	0.815
90	general	1	7	1.0	0.8900	0.313	0.890	0.110	0.000	0.890
91	general	2	1	1.0	0.4900	0.500	0.490	0.510	0.000	0.490
92	general	2	3	1.0	0.1180	0.323	0.118	0.882	0.000	0.118
93	general	2	4	1.0	0.8390	0.368	0.839	0.161	0.000	0.839
94	general	2	5	1.0	0.6430	0.479	0.643	0.357	0.000	0.643
95	general	2	6	1.0	0.2620	0.440	0.262	0.738	0.000	0.262
96	general	2	7	1.0	0.9090	0.288	0.909	0.091	0.000	0.909
97	general	3	1	0.0	0.9440	0.230	0.944	0.056	0.000	0.056
98	general	3	2	0.0	0.8820	0.323	0.882	0.118	0.000	0.118
99	general	3	4	0.0	0.9660	0.181	0.966	0.034	0.000	0.034
100	general	3	5	0.0	0.9590	0.198	0.959	0.041	0.000	0.041
101	general	3	6	0.0	0.9460	0.226	0.946	0.054	0.000	0.054
102	general	3	7	0.0	0.9700	0.171	0.970	0.030	0.000	0.030
103	general	4	1	1.0	0.0790	0.270	0.079	0.921	0.000	0.079
104	general	4	2	0.0	0.1610	0.368	0.161	0.839	0.000	0.839
105	general	4	3	1.0	0.0340	0.181	0.034	0.966	0.000	0.034
106	general	4	5	1.0	0.2660	0.442	0.266	0.734	0.000	0.266
107	general	4	6	0.0	0.0670	0.250	0.067	0.933	0.000	0.933
108	general	4	7	1.0	0.4890	0.500	0.489	0.511	0.000	0.489
109	general	5	1	0.0	0.3000	0.458	0.300	0.700	0.000	0.700

110	general	5	2	0.0	0.3570	0.479	0.357	0.643	0.000	0.643
111	general	5	3	1.0	0.0410	0.198	0.041	0.959	0.000	0.041
112	general	5	4	0.0	0.7340	0.442	0.734	0.266	0.000	0.266
113	general	5	6	0.0	0.1130	0.317	0.113	0.887	0.000	0.887
114	general	5	7	1.0	0.7110	0.454	0.711	0.289	0.000	0.711
115	general	6	1	1.0	0.8150	0.388	0.815	0.185	0.000	0.815
116	general	6	2	0.0	0.7380	0.440	0.738	0.262	0.000	0.262
117	general	6	3	1.0	0.0540	0.226	0.054	0.946	0.000	0.054
118	general	6	4	1.0	0.9330	0.250	0.933	0.067	0.000	0.933
119	general	6	5	1.0	0.8870	0.317	0.887	0.113	0.000	0.887
120	general	6	7	1.0	0.9320	0.252	0.932	0.068	0.000	0.932
121	general	7	1	0.0	0.1100	0.313	0.110	0.890	0.000	0.890
122	general	7	2	0.0	0.0910	0.288	0.091	0.909	0.000	0.909
123	general	7	3	1.0	0.0300	0.171	0.030	0.970	0.000	0.030
124	general	7	4	0.0	0.5110	0.500	0.511	0.489	0.000	0.489
125	general	7	5	0.0	0.2890	0.454	0.289	0.711	0.000	0.711
126	general	7	6	0.0	0.0680	0.252	0.068	0.932	0.000	0.932

Part IV. Goodness of fit tests for multivariable regression

Dependent variable:

Motor impairment in the chronic phase after stroke: FM-UE six months

Independent variables:

Motor impairment in the acute phase after stroke : FM-UE one week

Weighted lesion load within premotor dorsal pathway: w-PMD-LL

Age at stroke onset, dichotomised (cut-off 70 years): Age

Assumptions:

Online Table IV. Non-perfect multicollinearity

First method: Variance Inflation Factor (VIF)

Independent variables	VIF
FM-UE one week	1.418
w-PMD-LL	1.601
Age	1.162

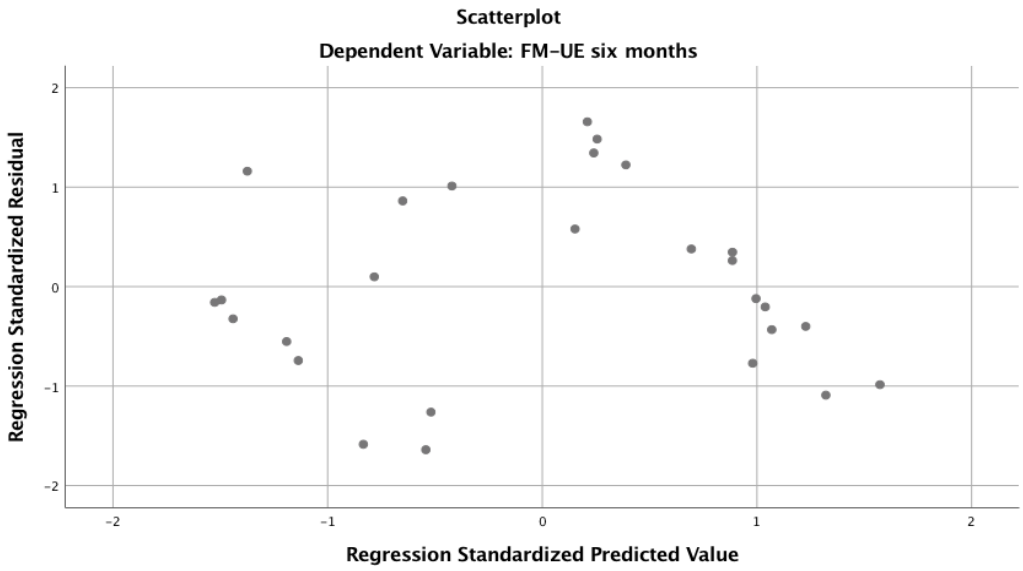
Second method: Tolerance

Independent variables	Tolerance
FM-UE one week	.705
w-PMD-LL	.625
Age	.860

Third method: Correlation matrix (Pearson's r)

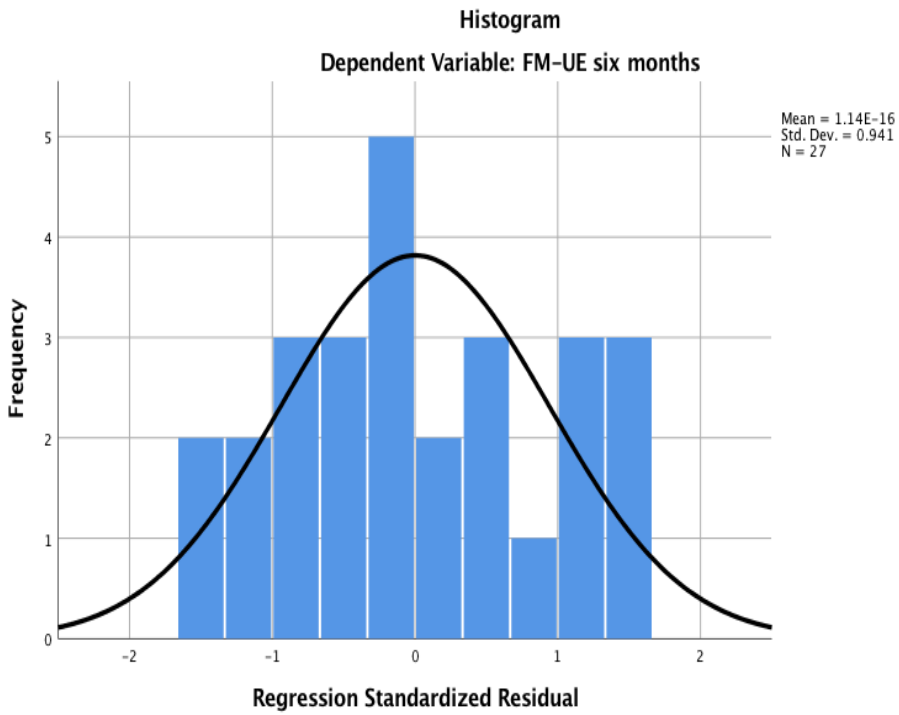
	FM-UE one week	w-PMD-LL	Age
FM-UE one week	1	-.541	-.162
w-PMD-LL	-.541	1	.371
Age	-.162	.371	1

Online Figure II. Homoscedasticity

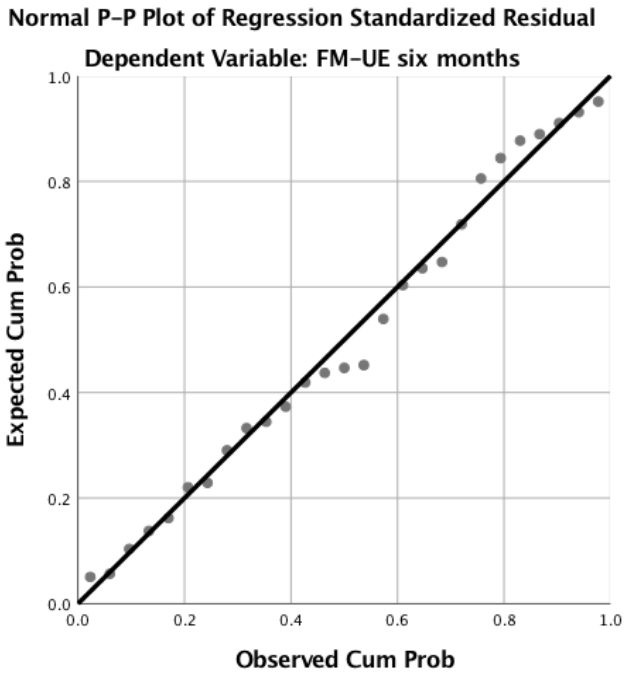


Method: visual inspection scatterplot

Online Figure III. Normally distributed errors – visual inspection histogram



Online Figure IV. Normally distributed errors – Normal P-Plots



Kolmogorov Smirnov test for normally distributed errors

Variable: Standardised residuals
Results: statistic = .154; degrees of freedom = 27; p = .099

Fourth method: Shapiro-Wilk test
Results: statistic = .962; degrees of freedom = 27; p = .415

Independent errors

Method: Durbin-Watson test = 1.375

Cross-validation

Method: Adjusted R_2 = .785

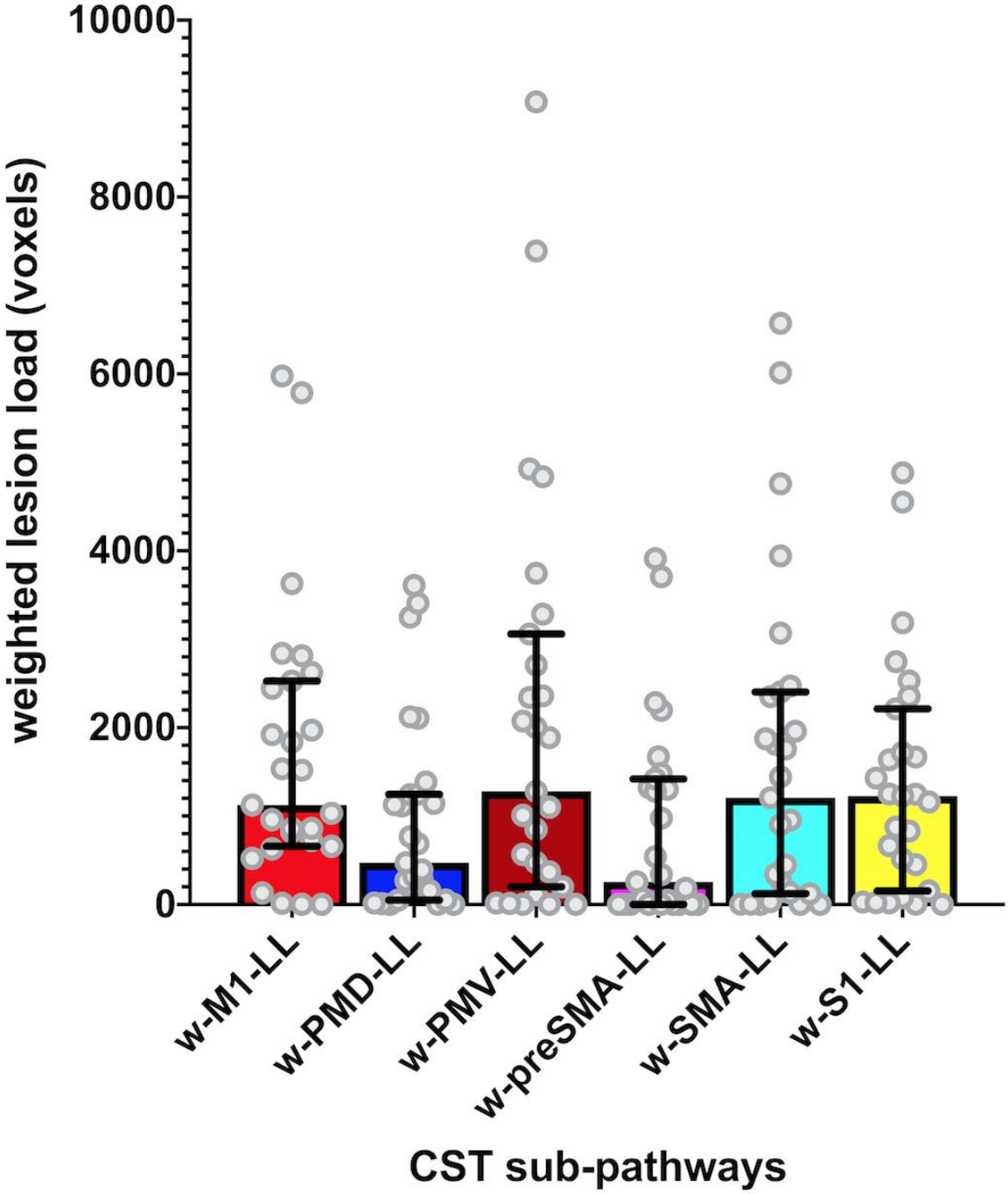
Online Table V. Resampling – Bootstrapping

	B	SE B	95% CI lower bound		p
			Lower	Upper	
FM-UE one week	.684	.121	.442	.910	.001
w-PMD-LL	-.010	.003	-.014	-.003	.008
Age	13.706	5.357	2.467	23.654	.026

(based on 1000 bootstrap samples)

Part V. Differences in weighted lesion load within CST sub-pathways

Online Figure V. Lesion load within CST pathways



Each dot represents individual lesion load within each CST sub-pathway; boxplots report median and bars refer to interquartile range.

Online Table VI. Descriptive statistics

	Mean	SD	Q1	Q2	Q3
w-PMD-LL	942	1088	51	473	1247
w-M1-LL	1695	1553	658	1125	2526
w-PMV-LL	2062	2317	201	1280	3060
w-preSMA-LL	852	1127	0	257	1419
w-SMA-LL	1662	1853	123	1209	2401
w-S1-LL	1387	1330	154	1228	2213

First step: non-parametric repeated measure

Method: Friedman test

Results: Weighted lesion load was significant different between CST sub-pathways, $\chi_2(5) = 38.21$, $p < .001$.

Online Table VII. Friedman test

	Mean Rank
w-PMD-LL	2.52
w-M1-LL	4.52
w-PMV-LL	4.28
w-preSMA-LL	2.11
w-SMA-LL	4.06
w-S1-LL	3.52

Second step: non-parametric related group comparisons

Method: Wilcoxon signed rank test

Results: Wilcoxon signed rank test was used to further investigate results from Friedman test. To this end, a Bonferroni correction was applied and so all effects are reported at a .003 level of significance. Z score, effect size and significance (Exact test, 2-tailed) are reported in the table below for each comparison.

Online Table VIII. Wilcoxon signed rank test

First variable	Second variable	Z	Effect size (r)	p
w-PMD-LL	w-M1-LL	-3.46	-.48	.000*
w-PMD-LL	w-PMV-LL	-3.39	-.47	.000*
w-PMD-LL	w-preSMA-LL	1.01	.14	.325
w-PMD-LL	w-SMA-LL	-3.75	-.52	.000*
w-PMD-LL	w-S1-LL	-3.01	-.42	.001*
w-M1-LL	w-PMV-LL	-0.93	-.13	.367
w-M1-LL	w-preSMA-LL	3.52	.49	.000*
w-M1-LL	w-SMA-LL	0.67	.09	.515
w-M1-LL	w-S1-LL	3.39	.47	.000*
w-PMV-LL	w-preSMA-LL	3.62	.50	.000*
w-PMV-LL	w-SMA-LL	1.64	.23	.105
w-PMV-LL	w-S1-LL	1.66	.23	.099
w-preSMA-LL	w-SMA-LL	-3.66	-.51	.000*
w-preSMA-LL	w-S1-LL	-2.91	-.40	.003
w-SMA-LL	w-S1-LL	1.08	.15	.290

Level of significance based on Bonferroni correction (.05/15=.003)