

**Supplemental Table 1** – Individual baseline data of NORTHSTA-CA patients (chronic aphasia).

NIHSS, National Institutes of Health Stroke Scale; F, Frontal lobe; P, Parietal lobe; T, Temporal lobe; I, Insula; BG, Basal ganglia; BNT, Boston Naming Test; SF1min, Semantic Fluency test (animals in 1 minute); TT, 36-item Token Test; UnAS, Unified Aphasia Score.

Randomization group	Chronic patient ID	Months post-stroke	NIHSS	Lesion location (middle cerebral artery territories, y/n)						Language scores at baseline			
				F	P	T	I	BG	Broca's	Naming (BNT total correct Z-score)	Verbal fluency (SF1min Z-score)	Comprehension (TT Z-score)	UnAS (T-score)
rTMS													
	819	95	3	y	n	y	y	n	y	-6.0	-0.5	-9.9	73.9
	812	16	8	y	y	y	n	n	y	-10.8	-3.1	-10.2	5.4
	808	151	10	n	y	y	y	n	y	-12.6	-2.7	-11.6	12.5
	813	17	6	y	n	n	y	y	y	-0.5	-1.6	-0.9	41.4
	805	108	14	y	y	y	y	y	y	-7.4	-3.2	-13.8	24.8
	806	8	10	y	n	n	y	y	y	-7.9	-3.4	-10.1	47.6
	823	17	1	y	n	n	y	y	y	-2.7	-0.7	-1.1	47.3
	824	23	4	y	y	n	y	y	y	-5.3	-2.4	-7.8	24.2
	821	174	5	y	y	y	y	n	y	-4.6	-0.9	-8.1	25.8
	817	42	6	y	y	n	n	n	y	-3.7	-2.4	-6.9	84.7
	807	76	2	n	y	n	n	n	n	-6.4	-0.9	-9.1	71.9
	802	51	8	y	y	n	y	y	y	-5.4	0.0	-7.4	18.8
	818	8	6	y	y	n	y	n	y	-8.8	-3.1	-12.7	1.5
	814	16	5	y	n	n	n	y	y	-6.6	-3.1	-4.3	8.8
sham													
	831	16	4	n	y	y	y	n	y	-6.8	-2.1	-10.4	5.4
	828	129	7	y	n	n	y	y	y	-7.4	-3.0	-9.9	56.7
	803	284	10	y	y	n	y	y	y	-0.5	-0.7	-2.0	50.8
	815	8	5	n	n	y	y	y	y	-11.3	-3.6	-9.7	25.4
	820	13	17	y	y	n	y	y	y	-8.8	-3.4	-16.2	7.5
	809	71	10	y	n	n	y	y	y	-5.8	-1.9	-6.9	24.8
	825	19	1	y	n	n	y	n	y	-2.2	-0.5	-2.1	27.9
	829	65	1	y	n	n	n	n	y	-8.7	-1.7	-6.1	33.9
	826	48	7	y	n	n	n	y	y	-8.0	-3.3	-12.3	1.0
	816	13	11	y	y	n	n	y	y	-8.3	-3.4	-16.5	3.0
	822	87	3	y	y	n	n	n	n	-1.2	-0.8	-1.3	41.7
	810	6	13	y	y	y	y	n	y	-12.3	-3.4	-15.7	0.6
	801	16	17	y	y	n	y	y	y	-9.6	-3.4	-15.5	7.8
	827	310	3	y	y	y	y	y	y	-11.8	-0.9	-10.7	17.4

**Supplemental Table 2** – Correlations of outcome variables with baseline scores, months post-stroke at recruitment and baseline Resting Motor Threshold (RMT) in the whole chronic patient sample (N=28).

BNT, Boston Naming Test; SF1min, Semantic Fluency test (animals in 1 minute); TT, 36-item Token Test. \* identifies *p*-values <0.05.

Change relative to baseline		Correlation with baseline score (Spearman's coefficient and <i>p</i> -value)	Correlation with post-stroke months at recruitment (Spearman's coefficient and <i>p</i> -value)	Correlation with baseline RMT (Spearman's coefficient and <i>p</i> -value)
<b>Naming (BNT)</b>	Day 1	0.067 .736	.447* .017	0.011 .954
	Day 30	-0.011 .956	.400* .035	0.099 .616
<b>Verbal fluency (SF1min)</b>	Day 1	0.313 .105	0.214 .275	-0.037 .853
	Day 30	.462* .013	0.352 .067	0.318 .099
<b>Comprehension (TT)</b>	Day 1	0.169 .391	0.066 .738	-0.357 .062
	Day 30	0.143 .468	.404* .033	-0.007 .971
<b>Unified Aphasia Score (UnAS) percent change</b>	Day 1	-.547* .003	-0.268 .169	-0.188 .338
	Day 30	-.426* .024	-0.305 .115	-0.248 .203

**Supplemental Table 3** – Correlations of outcome variables with baseline scores, months post-stroke at recruitment and baseline Resting Motor Threshold (RMT) in the rTMS chronic patient group (N=14). \*identifies p-values <0.05.

BNT, Boston Naming Test; SF1min, Semantic Fluency test (animals in 1 minute); TT, 36-item Token Test.

Change relative to baseline		Correlation with baseline score (Spearman's coefficient and <i>p-value</i> )	Correlation with post-stroke months at recruitment (Spearman's coefficient and <i>p-value</i> )	Correlation with baseline RMT (Spearman's coefficient and <i>p-value</i> )
<b>Naming (BNT)</b>	Day 1	-0.007 .982	0.451 .106	-0.031 .917
	Day 30	-0.007 .982	0.439 .116	0.080 .787
<b>Verbal fluency (SF1min)</b>	Day 1	0.398 .159	-0.080 .787	0.138 .637
	Day 30	.700* .005	0.282 .328	0.508 .063
<b>Comprehension (TT)</b>	Day 1	-0.029 .922	-0.082 .781	-0.506 .065
	Day 30	-0.117 .690	0.164 .576	-0.023 .937
<b>Unified Aphasia Score (UnAS) percent change</b>	Day 1	-0.530 .051	-0.398 .159	-0.264 .362
	Day 30	-0.503 .067	-.538* .047	-0.477 .084