

SUPPLEMENTARY MATERIAL

All information contained in this file refers to the article “*Evidence for Enhanced Backward Connectivity in the Third Visual Pathway Following Cortico-Cortical Paired Associative Stimulation*” (Pirazzini, Cataneo, Pelle, Marra, Arcara, Battaglia, Ursino, Avenanti).

Statistical results for the different frequency bands

The statistical results for all comparisons for all individual frequency bands (theta, alpha, beta, and gamma) are shown below.

Table S1. Statistical results of paired samples *t*-tests and effect size estimates for the theta, alpha, beta, and gamma frequency bands (Figure 5-6-7-8 of the main manuscript). *t*(19) indicates the *t*-statistic with 19 degrees of freedom. *p*-values are Bonferroni-corrected for 4 multiple comparisons. Cohen’s *d* and partial eta-squared (η_p^2) provide effect size estimates. Statistically significant comparisons (corrected *p* < 0.05) are highlighted.

Session	Direction	Time interval	<i>t</i> (19)	<i>p</i> -value (corrected)	Cohen's <i>d</i>	η^2
THETA FREQUENCY RANGE (4-8 Hz)						
ccPAS _{STS-V1}	Backward	Pre vs Post0	-3.65	0.007	-0.82	0.41
	Forward	Pre vs Post0	1.18	1.00	0.26	0.07
	Backward	Pre vs Post30	-5.53	<0.001	-1.24	0.62
	Forward	Pre vs Post30	-0.67	1.00	-0.15	0.02
ccPAS _{V1-STS}	Backward	Pre vs Post0	-3.12	0.02	-0.70	0.34
	Forward	Pre vs Post0	-2.69	0.06	-0.60	0.28
	Backward	Pre vs Post30	-2.08	0.21	-0.46	0.19
	Forward	Pre vs Post30	-0.96	1.00	-0.22	0.05

ccPAS_{STS-V1}						
vs						
ccPAS_{V1-STS}	Backward	Pre vs Post0	-0.08	1.00	0.00	0.00
	Forward	Pre vs Post0	-2.86	0.04	-0.64	0.30
	Backward	Pre vs Post30	2.62	0.07	0.59	0.265
	Forward	Pre vs Post30	0.06	1.00	0.01	0.00

ALPHA FREQUENCY RANGE (8-12 Hz)

			<i>t(19)</i>	<i>p-value (corrected)</i>	<i>Cohen's d</i>	η^2
ccPAS_{STS-V1}	Backward	Pre vs Post0	-4.91	<0.001	-1.10	0.56
	Forward	Pre vs Post0	-1.95	0.26	-0.44	0.17
	Backward	Pre vs Post30	-4.49	<0.001	-1.00	0.52
	Forward	Pre vs Post30	-4.05	0.003	-0.91	0.46
ccPAS_{V1-STS}	Backward	Pre vs Post0	-1.92	0.28	-0.43	0.16
	Forward	Pre vs Post0	-2.74	0.06	-0.61	0.28
	Backward	Pre vs Post30	-1.53	0.57	-0.34	0.11
	Forward	Pre vs Post30	-4.52	<0.001	-1.01	0.52
ccPAS_{STS-V1}						
vs						
ccPAS_{V1-STS}	Backward	Pre vs Post0	2.34	0.12	0.52	0.22
	Forward	Pre vs Post0	-0.19	1.00	-0.04	0.00

	Backward	Pre vs Post30	1.38	0.73	0.31	0.09
	Forward	Pre vs Post30	0.58	1.00	0.13	0.02

BETA FREQUENCY RANGE (12-30 Hz)

			<i>t</i> (19)	<i>p</i> -value (corrected)	Cohen's <i>d</i>	η^2
ccPAS_{STS-V1}	Backward	Pre vs Post0	-4.86	<0.001	-1.09	0.55
	Forward	Pre vs Post0	1.53	0.57	0.34	0.11
	Backward	Pre vs Post30	-5.42	<0.001	-1.21	0.61
	Forward	Pre vs Post30	-1.84	0.33	-0.41	0.15
ccPAS_{V1-STS}	Backward	Pre vs Post0	-0.48	1.00	-0.11	0.01
	Forward	Pre vs Post0	-1.46	0.64	-0.33	0.10
	Backward	Pre vs Post30	0.29	1.00	0.06	0.00
	Forward	Pre vs Post30	-4.85	<0.001	-1.08	0.55
ccPAS_{STS-V1} vs ccPAS_{V1-STS}	Backward	Pre vs Post0	2.38	0.11	0.53	0.23
	Forward	Pre vs Post0	-2.30	0.13	-0.51	0.22
	Backward	Pre vs Post30	3.75	<0.01	0.84	0.43
	Forward	Pre vs Post30	-3.09	0.02	-0.69	0.34

GAMMA FREQUENCY RANGE (30-80 Hz)

			<i>t</i> (19)	<i>p</i> -value (corrected)	Cohen's <i>d</i>	η^2
--	--	--	---------------	-----------------------------	------------------	----------

ccPAS_{STS-V1}	Backward	Pre vs Post0	-3.36	0.01	-0.75	0.37
	Forward	Pre vs Post0	-2.94	0.03	-0.66	0.31
	Backward	Pre vs Post30	-4.04	<0.01	-0.90	0.46
	Forward	Pre vs Post30	-4.58	<0.001	-1.02	0.53
ccPAS_{V1-STS}	Backward	Pre vs Post0	-2.04	0.23	-0.46	0.18
	Forward	Pre vs Post0	1.15	1.00	0.26	0.07
	Backward	Pre vs Post30	-2.02	0.23	-0.45	0.12
	Forward	Pre vs Post30	-5.31	<0.001	-1.19	0.60
ccPAS_{STS-V1} vs ccPAS_{V1-STS}	Backward	Pre vs Post0	1.05	1.00	0.24	0.06
	Forward	Pre vs Post0	2.83	0.04	0.63	0.23
	Backward	Pre vs Post30	1.46	0.65	0.33	0.10
	Forward	Pre vs Post30	-0.71	1.00	-0.71	0.03

Comparison of within-cluster Outdegree variations between the two protocols

We performed a within-cluster comparison (i.e., considering only connections belonging to the temporoparietal cluster or only to the occipital cluster) between the two stimulations, for the entire frequency band. In this way (i.e., comparing the two stimulation protocols with each other), spurious effects such as spatial dispersion or “cross-talk” should be at least partially mitigated. The results are shown in the following Figure S1.

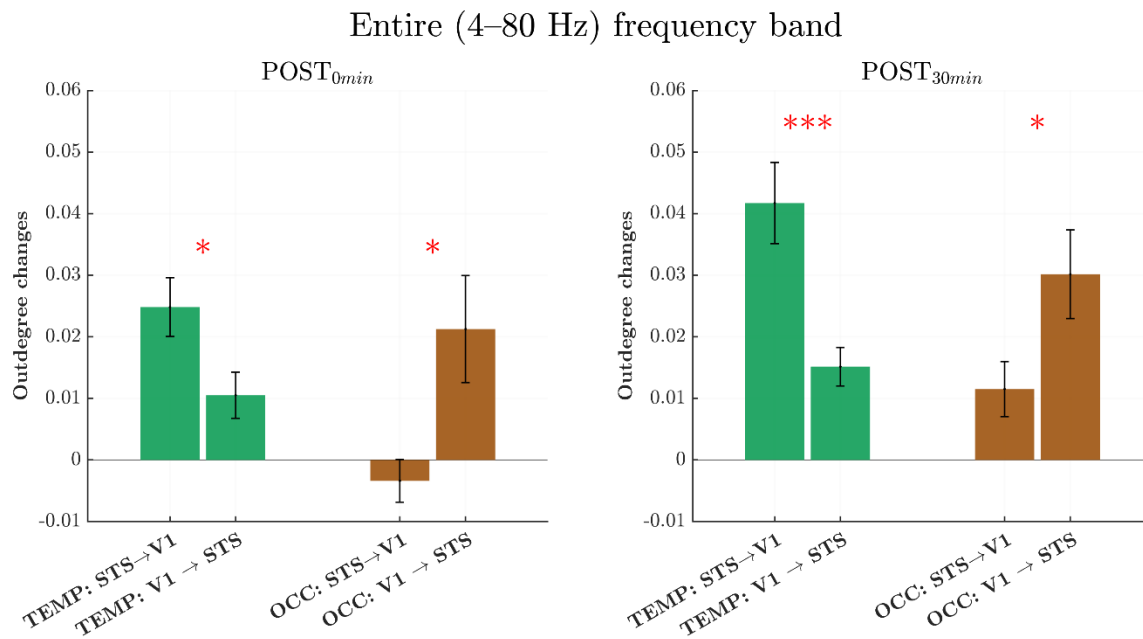


Figure S1: Comparison of within-cluster Outdegree variations between the two protocols: $ccPAS_{STS-V1}$ vs $ccPAS_{V1-STS}$, at the two different time intervals: post0min (left panel) and post30min (right panel). To assess the connectivity changes induced by the two stimulations, we compared the sum of the differences in the value of the connections between the post (at 0 and 30 minutes) and the pre time intervals. Within each panel, the results relating to the temporoparietal cluster are shown in the left column, while the results relating to the occipital cluster are shown in the right column. Asterisks indicate significance (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Bonferroni-corrected for 4 multiple comparisons). X denotes $p < 0.05$ (uncorrected). Error bars indicate 95% confidence intervals (CI).

It can be noted that the increase in connectivity is always greater in the “first” site stimulation cluster. That is, the $ccPAS_{STS-V1}$ stimulation session increases the internal connections to the temporoparietal cluster more, while $ccPAS_{V1-STS}$ stimulation increases more those internal to the occipital cluster.