Supplementary Material

One-Year Follow-Up of Healthy Older Adults with Electroencephalographic Risk for Neurocognitive Disorder After Neurofeedback Training

Supplementary Table 1. The highest z-value of theta absolute power per subject before NFB and the subsequent evaluations.

Group	Subject	Electrode	zAP(theta)* B	2mA	1yA
EXP	V006	C3	2.39	1.96	2.45
	V016	P3	3.25	1.73	1.31
	V026	P3	7.57	5.26	4.02
	V031	C3	2.49	0.13	0.38
	V033	C3	3.58	2.22	1.46
	V035	C3	2.89	0.91	1.68
	V063	T4	2.33	1.13	0.34
	V064	P4	4.80	3.74	2.91
	V077	F3	3.66	0.17	0.50
	V093	F4	2.97	0.89	1.15
CTL	V015	C4	2.84	1.85	1.75
	V018	O2	2.06	0.61	1.19
	V021	F8	2.85	3.19	2.49
	V024	C3	3.73	2.45	2.67
	V095	C3	4.65	3.25	4.44
	V095	F7	2.38	1.87	1.89
	V102	Cz	2.03	0.70	0.61
	V103	C3	2.13	1.77	1.45

*zAP(theta) means that the z-value of theta absolute power before (B), 2 months (2mA), and 1 year after (1yA) treatment are reported after geometric power correction. In the third column, the electrode corresponding to the most abnormal z-value is shown.

Supplementary Table 2. WAIS comparisons within groups between the before and after evaluations.

IQs and indices	EXPERIMENTAL GROUP					
	2mA versus B		1yA versus 2mA		1yA versus B	
	t-test	p	t-test	p	t-test	p
Verbal IQ	-1.650	0.262	1.328	0.331	-0.531	0.612
Performance IQ	-1.015	0.501	1.786	0.182	0.529	0.614
IQ	-1.892	0.198	1.953	0.151	0.183	0.761
VCI	0.000	0.999	-0.262	0.919	-0.423	0.671
POI	-1.074	0.488	1.725	0.200	0.390	0.687
WMI	-1.652	0.262	1.412	0.305	0.297	0.713
PSI	-1.647	0.276	-0.932	0.985	0.078	0.805
	CONTROL GROUP					
	2mA versus B		1yA versus 2mA		1yA versus B	
	t-test	p	t-test	p	t-test	p
Verbal IQ	2.000	0.180	-1.580	0.389	0.105	0.989
Performance IQ	0.423	0.855	0.339	0.996	0.411	0.934
IQ	2.600	0.087	-1.989	0.216	-0.593	0.869
VCI	1.369	0.457	-2.546	0.082	-1.473	0.434
POI	0.266	0.903	-0.907	0.789	-0.265	0.972
WMI	-0.139	0.936	0.491	0.964	0.156	0.985
PSI	-0.102	0.952	0.434	0.978	0.505	0.905

IQ, intelligence quotient; VCI, Verbal comprehension index; POI, Perceptual organization index; WMI, Working memory index; PSI, Processing speed index; B, Before treatment; 2mA, 2 months after treatment; 1yA, 1 year after treatment.

Supplementary Table 3. WAIS comparisons between groups between the before and after evaluations.

IQs and indices	Comparisons between groups EXPERIMENTAL versus CONTROL					
	Diff (2mA - B)		Diff (1yA – 2mA)		Diff (1yA - B)	
	t-test	p	t-test	p	t-test	p
Verbal IQ	-2.573	0.069	2.130	0.143	-0.511	0.977
Performance IQ	-1.158	0.521	1.268	0.443	0.182	0.855
IQ	-2.789	0.045 *	2.853	0.040 *	0.449	0.764
VCI	-0.321	0.873	0.559	0.755	0.389	0.790
POI	-1.019	0.585	2.055	0.165	0.499	0.750
WMI	-0.703	0.745	0.879	0.620	0.028	0.900
PSI	-0.718	0.735	0.107	0.899	-0.361	0.959

IQ, intelligence quotient; VCI, Verbal comprehension index; POI, Perceptual organization index; WMI, Working memory index; PSI, Processing speed index; Diff, subtraction; B, Before treatment; 2mA, 2 months after treatment; 1yA, 1 year after treatment.

Supplementary Table 4. NEUROPSI comparisons within groups between the before and after evaluations.

Cognitive domain	Subtest	EXPERIMENTAL					
		2mA versus B		1yA versus 2mA		1yA versus B	
		t-test	p	t-test	p	t-test	p
Orientation		1	0.995	0	1	1	0.998
Attention	Digits Backward	-2.612	0.153	2.27	0.239	0.215	1
	Visual detection	0.410	1	-1.245	0.916	-0.215	0
	20 minus 3	0	1	-1	0.999	-1	0.998
Encoding	Verbal memory	1	0.995	-1	0.999	0	1
	Copy of a figure	1.234	0.904	0	1	1.218	0.916
Language	Naming	-0.807	0.999	1.632	0.547	0.557	1
	Repetition	0	1	0	1	0	1
	Comprehension	0.835	0.999	-1.494	0.817	-0.557	1
	Verbal fluency	0	1	-0.182	1	-0.264	1
Reading		-0.287	1	0.287	1	0	1
Writing		1.5	0.775	0	1	1.5	0.862
Executive functions		0.503	1	0.231	1	2.880	0.038 *
Recall	Words	1.650	0.675	1.405	0.933	2.175	0.307
	Cuing	-0.557	1	-1.794	0.437	-2.023	0.374
	Recognition	0.132	1	-1.073	0.934	-1.071	0.976
	Semi-complex figure	-0.757	0.999	0.218	1	-0.480	1

Cognitive domain	Subtest	CONTROL					
		2mA versus B		1yA versus 2mA		1yA versus B	
		t-test	p	t-test	p	t-test	p
Orientation		0	1	0	1	0	1
Attention	Digits Backward	0.551	1	1.018	0.941	1.456	0.932
	Visual detection	1.078	0.987	-0.447	1	1.929	0.560
	20 minus 3	-0.803	1	1	0.942	1	0.971
Encoding	Verbal memory	2.497	0.193	-2.049	0.117	0.260	1
	Copy of a figure	-0.881	1	-1.247	0.904	-2.806	0.384
Language	Naming	0	1	0.839	1	1	0.971
	Repetition	0	1	0	1	0	1
	Comprehension	0.797	1	-1.378	0.903	-0.061	1
	Verbal fluency	0	1	0.6	1	0.6	1
Reading		0.260	1	0	1	0.356	1
Writing		1	0.992	-1	0.962	0	1
Executive functions		-4.960	<0.001 **	0.006	1	-7.934	<0.001 **
Recall	Words	1	0.992	0	1	0.551	1
	Cuing	-1	0.993	1.488	0.892	1.527	.0757
	Recognition	0	1	-0.728	1	-0.728	0.996
	Semi-complex figure	0.423	1	0	1	0.403	1

B, Before treatment; 2mA, 2 months after treatment; 1yA, 1 year after treatment.
*p < 0.05; **p < 0.001

Supplementary Table 5. NEUROPSI comparisons between groups between the before and after evaluations.

Cognitive domain	Subtest	EXPERIMENTAL versus CONTROL					
		Diff (2mA - B)		Diff (1yA - 2mA)		Diff (1yA - B)	
		t-test	p	t-test	p	t-test	p
Orientation		0.942	0.994	0	1	0.942	0.992
Attention	Digits Backward	-2.320	0.321	0.744	0.998	-0.930	1
	Visual detection	-0.557	0.999	-0.395	0.999	-0.807	1
	20 minus 3	0.960	0.989	-1.335	0.894	-1.510	0.777
Encoding	Verbal memory	-1.865	0.572	1.476	0.772	-0.311	1
	Copy of a figure	1.385	0.890	0.339	0.999	1.880	0.610
Language	Naming	-0.617	0.998	-0.073	1	-0.619	1
	Repetition	0	1	0	1	0	1
	Comprehension	-0.514	0.999	0.240	1	-0.267	1
	Verbal fluency	0	1	-0.608	0.999	-0.720	1
Reading		-0.412	1	0.172	1	-0.289	1
Writing		0.426	1	1.195	0.947	0.942	0.992
Executive functions		0.931	1	0.181	1	3.771	0.003 **
Recall	Words	1.188	0.965	1.086	0.988	1.621	0.785
	Cuing	-0.189	1	-2.145	0.426	-2.292	0.082
	Recognition	0.120	1	-0.260	1	-0.151	1
	Semi-complex figure	-0.848	0.992	0.151	1	-0.660	1

Diff, difference; B, Before treatment; 2mA, 2 months after treatment; 1yA, 1 year after treatment.
*p < 0.05; **p < 0.001