GeroScience, Online Resource 1 (supplementary information) for

Multi-night acoustic stimulation is associated with better sleep, amyloid dynamics, and memory in older adults with cognitive impairment

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Regression models of physiological response to stimulation on plasma Aβ pre- to post-intervention change scores: No effect of including covariates age and gender (model comparisons)

Table S1. PLAS-induced electrophysiological response predicts Amyloid Beta (Aβ) response to treatment

	All participants		Healthy		Cognitive impairment	
Model without covariates			**t-values**			
(intercept)	5.75	***	4.62	***	4.23	***
Aβ	0.71		-0.68		2.77	*
Model with covariates			**t-values**			
(intercept)	0.63		-0.47		0.86	
Aβ	0.67		-0.73		2.11	.
Age	-0.37		0.80		-0.40	
Gender	0.52		-0.42		-0.54	
Model comparison			**F-values**			
	0.20		0.61		0.26	

**** p < 0.001; ** p < 0.01; * p < 0.05; . p = 0.058. The stronger the physiological response to PLAS, the more favorable plasma amyloid levels developed from pre- to post-intervention in the cognitively impaired (CI)-group alone (last column). Age and gender did not explain changes in Aβ42/Aβ40 difference score (model comparison: F(2, 11) = 0.26, p = 0.78). Including these covariates in the regression model reduced the effect of the induced second SW peak to a strong trend (p = 0.058), probably due to overfitting*

Regression models of physiological response to stimulation on memory (performance in face-occupation associations (FOA) task): No effect of including covariates age and gender (model comparisons)

Table S2. PLAS-induced electrophysiological response and FOA-performance post-intervention

Post-intervention	All participants	Healthy	Cognitive impairment
Model without covariates		**t-values**	
(intercept)	0.97	-0.18	1.46
FOA	2.62 *	2.30 *	0.64
Model with covariates		**t-values**	
(intercept)	0.26	-1.09	1.36
FOA	2.44 *	2.15 .	0.93
Age	-0.19	1.09	-1.30
Gender	0.47	0.19	0.76
Model comparison		**F-values**	
	0.14	0.60	1.33

**** p < 0.001; ** p < 0.01; * p < 0.05; . p < 0.1*

Table S3. PLAS-induced electrophysiological response and FOA-performance at follow-up 1

Follow-up 1	All participants	Healthy	Cognitive impairment
Model without covariates		**t-values**	
(intercept)	1.82 .	-0.08	1.99 .
FOA	3.34 **	2.90 *	1.07
Model with covariates		**t-values**	
(intercept)	0.16	-0.64	1.29
FOA	3.11 **	2.51 *	0.76
Age	0.00	0.60	-1.18
Gender	0.32	0.39	0.30
Model comparison		**F-values**	
	0.05	0.23	0.82

**** p < 0.001; ** p < 0.01; * p < 0.05; . p < 0.1*

Table S4. PLAS-induced electrophysiological response and FOA-performance at follow-up 2

Follow-up 2	All participants		Healthy		Cognitive impairment	
Model without covariates			**t-values**			
(intercept)	8.04	***	5.71	***	5.13	***
FOA	3.46	**	1.96	.	2.60	*
Model with covariates			**t-values**			
(intercept)	0.77		-0.38		1.37	
FOA	3.26	**	1.75		2.14	.
Age	-0.22		0.77		-1.06	
Gender	-0.40		-0.42		-0.14	
Model comparison			**F-values**			
	0.10		0.46		0.56	

**** p < 0.001; ** p < 0.01; * p < 0.05; . p < 0.1*

Including age and gender as covariates did not improve the models, nor did covariates associate with physiological response to stimulation (all model comparisons n.s, *p*>.30.; all covariates n.s., p>.22), but the main effect on memory performance (FOA) got weakened, probably due to overfitting.