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Short-Term Drinking of Evobooster™ Hydrogen-Rich Water and Neuropsychological Performance in Young Adults

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Backgroud: We conducted a pilot trial with Evobooster™ Hydrogen-Rich Water (E-HRW) in aim to evaluate the effectiveness and safety of the intervention on neuropsychological performance using computerized assessment batteries, including Serial Subtraction Test (SST), Attention Network Test (ANT), and Cognitive Drug Research Computerized Assessment System (COG-DRAS), and safety outcomes in young men and women. **Methods**: Sixteen (n = 16) young normal-weight healthy men and non-pregnant women (age 20.9 ± 1.5 years, weight 70.2 ± 11,5 kg, height 173.0 ± 8.9 cm; 6 women) volunteered to participate in this open-label interventional trial. All patients received the experimental intervention of 1.5 L per day of E-HRW produced by EVODROP Evobooster™ machine during a 7-day intervention period. **Results**: All volunteers completed the trial, with no participants reported any side effects of E-HRW; the compliance with the intervention was 96.0 ± 7.4%. The changes in study outcomes during the trial are depicted in Table 1. A significant difference was found for changes in several neuropsychological performance outcomes from baseline to 7-day post-administration ($P < 0.05$), with E-HRW improved executive control, reaction time and accuracy in ATN test, and simple reaction time, immediate and delayed word recognition, picture recognition and number vigilance in COG-DRAS test. **Conclusions**: A short-term consumption of E-HRW can be recommended as a well tolerated drink to acutely improve neuropsychological performance in young men and women. Further studies are needed to corroborate these preliminary promising findings in long-term randomized controled trials.

Table 1. Changes in study outcomes during the trial (n = 16). Values are mean ± SD.

	Baseline	Follow-up	*P*
Attention Network Test			
Alertness (msec)	40.8 ± 21.8	38.4 ± 18.4	0.346
Orienting (msec)	31.7 ± 15.8	33.9 ± 14.4	0.323
Executive control (msec)	115.6 ± 26.8	102.6 ± 17.8	0.009
Reaction time (msec)	552.8 ± 41.4	531.8 ± 46.1	0.001
Accuracy (%)	95.4 ± 3.4	97.6 ± 1.8	0.012
Serial Subtraction Test			
Number of responses (score)	15.4 ± 7.8	18.1 ± 8.6	0.107
Number of errors (score)	2.9 ± 5.2	1.9 ± 1.9	0.204
Cognitive Drug Research Computerized Assessment Test			
Simple reaction time (msec)	341.4 ± 128.3	274.4 ± 86.9	0.019
Choice reaction time – accuracy (%)	0.93 ± 0.06	0.95 ± 0.03	0.194
Choice reaction time – reaction time (msec)	432.9 ± 29.1	446.2 ± 39.4	0.158
Immediate word recognition – accuracy (%)	0.95 ± 0.06	0.98 ± 0.04	0.078
Immediate word recognition – reaction time (msec)	920.7 ± 165.4	816.6 ± 128.1	0.001
Delayed word recognition – accuracy (%)	0.93 ± 0.06	0.96 ± 0.05	0.013
Delayed word recognition – reaction time (msec)	835.1 ± 121.7	729.4 ± 78.4	0.001
Delayed picture recognition – accuracy (%)	0.93 ± 0.06	0.92 ± 0.08	0.385
Delayed picture recognition – reaction time (msec)	840.6 ± 108.9	786.9 ± 91.2	0.008
Number vigilance – accuracy (%)	0.83 ± 0.15	0.94 ± 0.10	0.003
Number vigilance – reaction time (msec)	446.8 ± 31.8	430.2 ± 19.6	0.047
Memory scan – accuracy (%)	0.97 ± 0.08	0.98 ± 0.06	0.379
Memory scan – reaction time (msec)	878.9 ± 238.9	781.6 ± 161.2	0.083