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Combination effect of green tea extract and L-theanine on memory and attention in mild cognitive impaired subjects: a randomized double-blind placebo-controlled study

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The combination of green tea extract and L-theanine (LGNC-07) has been reported to have cognition improving effect in animal studies⁽¹⁾. In this randomized, double-blinded placebo-controlled study, we investigated the effect of LGNC-07 on memory and attention in the mild cognition impaired (MCI) subjects⁽²⁾. Ninety-one MCI subjects whose MMSE-K scores were between 21 and 26 with 2–3 stages of GDS were enrolled in this study. The treatment group (13 males, 32 females; 57.58 ± 9.45 years) took 1440 mg GTE and 240 mg L-theanine and the placebo group (12 males, 34 females; 56.28 ± 9.92 years) took the equivalent amount of maltodextrin and lactose for 16 weeks. Rey–Kim memory test, Stroop colour-word test were conducted to evaluate the effect of LGNC-07 on memory and selective attention.

	Change at 8 weeks				Change at 16 weeks			
	LGNC-07 (n 11)		Placebo (n 9)		LGNC-07 (n 11)		Placebo (n 9)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>Rey–Kim memory test</i>								
Memory quotient (MQ)	8.82 ^b	10.39	4.78	10.44	14.18 ^{a,b}	10.56	6.00 ^b	7.19
<i>Verbal learning test</i>								
Trial 1	1.91 ^b	2.26	1.44	2.70	3.18 ^b	1.54	3.00 ^b	2.35
Trial 2	0.73	2.37	0.56	1.59	1.09	2.81	1.67 ^b	1.73
Trial 3	1.18	2.18	-0.22	2.99	1.91 ^b	2.55	-0.22	2.99
Trial 4	0.82	1.72	0.44	1.81	1.00	2.24	0.89	1.90
Trial 5	0.73	2.76	1.33	2.29	-0.18	1.99	0.78	2.68
Delayed recall	1.18	2.79	0.78	3.70	2.64	3.04 ^b	1.89 ^b	2.26
Delayed cognition	1.45	4.03	1.73	4.05	0.89	3.59	1.33	2.40
<i>Stroop color word test</i>								
Word reading	3.18 ^a	7.04	-0.44	1.88	1.91	6.27	0.11	2.57
Color reading	8.27	20.53	0.89	18.42	17.18 ^b	18.99	6.00	22.58

Data are represented as the differences from baseline in stratified subjects.

^aMeans denote significance between placebo and treatment by Wilcoxon rank sum test; $P < 0.05$.

^bMeans denote significant increase after treatment by paired sample *t*-test; $P < 0.05$.

LGNC-07 showed memory improvement by marginally increasing the delayed recognition of Rey–Kim memory test ($P = 0.0572$) and especially it significantly increases Rey–Kim MQ in stratified subjects (LGNC-07, $n 11$; placebo, $n 9$) whose MMSE-K lies between 21 and 23 ($P < 0.05$). Selective attention was also improved in the stratified subjects by a significant increase of word reading ($P < 0.05$). Therefore, this study suggests that LGNC-07 might be a potential nutraceutical candidate for cognition improvement.

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- Petersen RC, Doody R, Kurz A *et al.* (2001) *Arch Neurol* **58**, 1985–1992.