

Supplementary Online Content

Hunter LE, Freudenberg-Hua Y, Davies P, et al. Associations of apolipoprotein E ϵ 4 genotype and ball heading with verbal memory in amateur soccer players.

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eTable 1. Estimated Mean Change in Verbal Memory Stratified by Sex

eTable 2. Estimated Mean Change in Verbal Memory in Only White Players

eTable 3. Difference in Verbal Memory Score in APOE- ϵ 4 (-) vs APOE- ϵ 4 (+) by Racial Category

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Estimated Mean Change in Verbal Memory Stratified by Sex		
	Men^a	Women^b
International Shopping List Delayed Recall (<i>higher score = better performance</i>)		
Model 1	β (95% CI) P	β (95% CI) P
Heading Exposure		
Low (Reference)	---	---
Medium	---	---
High	-0.33 (-0.69, 0.03) 0.07	-0.04 (-0.37, 0.30) 0.84
	-0.70 (-1.12, -0.28) <0.01	-0.34 (-0.79, 0.10) 0.13
	0.13 (-0.31, 0.56) 0.57	-0.02 (-0.44, 0.41) 0.94
ApoE4		-0.02 (-0.44, 0.41) 0.94
Model 2		
Heading Exposure		
Low	0.33 (-0.03, 0.69) 0.07	0.04 (-0.30, 0.37) 0.84
Medium (Reference)	---	---
High	---	---
	-0.37 (-0.78, 0.04) 0.08	-0.31 (-0.79, 0.18) 0.21
ApoE4	0.13 (-0.31, 0.56) 0.57	-0.02 (-0.44, 0.41) 0.94

Beta values refer to the difference in ISRL score as compared to the reference group.

^a Adjusted for age, years of education, race, smoking history and alcohol use.

^b Adjusted for, age, years of education and race and alcohol use.

eTable 2. Estimated Mean Change in Verbal Memory in Only White Players (N =235 Observations = 765)			
	Main Effects Model*	ApoE4 Stratified analyses⁺	
		ApoE4 (-) players^a	ApoE4 (+) players^b
International Shopping List Delayed Recall (<i>higher score = better performance</i>)			
Model 1	β (95% CI) P	β (95% CI) P	β (95% CI) P
Heading Exposure			
Low (Reference)	---	---	---
Medium	---	---	---
High	-0.36 (-0.67, -0.05) 0.02	-0.35 (-0.71, 0.02) 0.06	-0.27 (-0.80, 0.26) 0.31
	-0.74 (-1.14, -0.34) <0.001	-0.51 (-0.96, -0.06) 0.03	-1.35 (-2.08, -0.62) <0.001
ApoE4	0.16 (-0.23, 0.55) 0.43	N/A	N/A
Model 2			
Heading Exposure			
Low	0.36 (0.05, 0.67) 0.02	0.35 (-0.02, 0.71) 0.06	0.27 (-0.26, 0.80) 0.31
Medium (Reference)	---	---	---
High	---	---	---
	-0.38 (-0.81, 0.05) 0.08	-0.16 (-0.65, 0.32) 0.51	-1.08 (-1.83, -0.34) <0.01
ApoE4	0.16 (-0.23, 0.55) 0.43	N/A	N/A

Beta values refer to the difference in ISRL score as compared to the reference group.
⁺P-value for ApoE4 x Heading interaction from GEE model: p = 0.08
*Adjusted for gender, age, years of education, race, smoking history and alcohol use.
^a Adjusted for gender, age, years of education, race, smoking history and alcohol use.
^b Adjusted for gender, age, years of education race, smoking history and alcohol use.

eTable 3. Difference in Verbal Memory Score in APOE-ε4 (-) vs APOE-ε4 (+) by Racial Category			
	APOE-ε4 (-) Players	APOE-ε4 (+) Players	P
Racial category	Mean (95 % CI)	Mean (95 % CI)	
Caucasian	10.19 (10.00 -10.40)	10.32 (9.96- 10.67)	0.60
African American	8.60 (8.17- 9.02)	8.55 (7.79- 9.31)	0.91
Asian	9.95 (9.25 – 10.66)	8.96 (7.48- 10.44)	0.27
Native Hawaiian or pacific islander ¹	--	--	---
Unknown	9.34 (8.69- 9.98)	9.19 (7.77-10.60)	0.87

Models adjusted for gender, age, years of education, and alcohol use.
¹Insufficient number of data points for testable coefficients.