

Supplementary material

Table S1: Sensitivity analysis on the association between cognitive test scores and CPT tolerance time in an independent subsample*

	Immediate recall			Coding test			MMS-E		
<i>n</i> = 3,601	HR	95 % CI	<i>p</i>	HR	95 % CI	<i>p</i>	HR	95%CI	<i>p</i>
Model 1:	0.92	0.88–0.96	0.000	0.94	0.89–0.99	0.031	0.90	0.86–0.94	0.000
Model 2:	0.92	0.88–0.97	0.001	0.95	0.90–1.00	0.054	0.90	0.86–0.94	0.000
Model 3:	0.92	0.88–0.96	0.000	0.95	0.90–1.00	0.060	0.90	0.86–0.94	0.000

*Of the total of 5,753 participants, we excluded 1,786 participants who had participated in CPT and cognitive testing in the 6th survey, leaving 3,601 participants who were eligible for the analysis. Analyses are Cox regression with cognitive test score standardized by z-transformation as independent variable and endurance time of CPT as outcome, adjusted for covariates as specified by model: Model 1: adjusted for sex, age and education. Model 2: adjusted for age, sex, education, smoking, exercise, body mass index, blood pressure and depression. Model 3: adjusted for age, sex, education, smoking, exercise, body mass index, blood pressure, depression, chronic pain, and analgesic use. Abbreviations: MMS-E: Mini Mental State Examination. CPT; cold pressor test.

Table S2: *P* values for interaction terms

	Immediate recall test score	Coding test score	MMS-E test score
Cold pressor test tolerance time (CPT)			
Age	0.050	0.443	0.169
Sex	0.683	0.094	0.047
Chronic pain	0.903	0.772	0.722
Cuff pain algometry tolerance time (CPA)			
Age	0.003	0.028	0.003
Sex	0.234	0.649	0.235
Chronic pain	0.446	0.097	0.914

The table shows *p* values for Cox regression analyses of the association between the interaction terms (variable*cognitive test score) and the outcome variables (CPT or CPA) when the interaction term was added to the fully adjusted models (adjusted for age, sex, education, smoking, exercise frequency, body mass index, blood pressure, depression, chronic pain, and analgesic use). Cognitive test scores were standardized by z-transformation.