

Supplementary Online Content

Desai P, Evans D, Dhana K, et al. Longitudinal association of total tau concentrations and physical activity with cognitive decline in a population sample. *JAMA Netw Open*. 2021;4(8):e2120398. doi:10.1001/jamanetworkopen.2021.20398

eFigure. Number of Participants by Physical Activity and Total Tau Group

eTable 1. Longitudinal Association of Continuous Variables: Physical Activity and Total Tau With Cognitive Outcomes

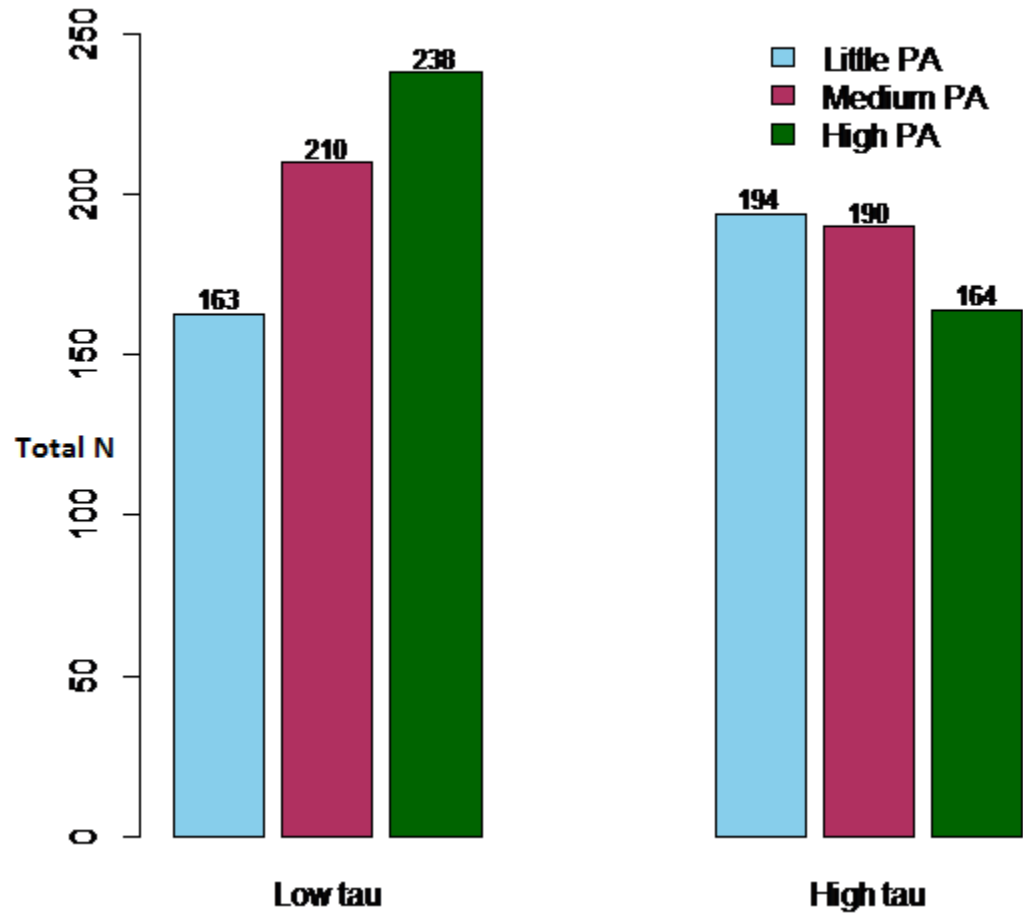
eTable 2. Longitudinal Association of Categorical Variables: Physical Activity and Total Tau With Global Cognitive Function

eTable 3. Longitudinal Association of Categorical Variables: Physical Activity and Total Tau With Cognitive Outcomes

eTable 4. Baseline Level of Episodic Memory, Perceptual Speed and MMSE

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

eFigure. Number of Participants by Physical Activity and Total Tau Group



eTable 1. Longitudinal Association of Continuous Variables: Physical Activity and Total Tau With Cognitive Outcomes

	Global Cognition (N=1159)			Episodic Memory (N=1150)			Perceptual Speed (N=1120)			MMSE (N=1160)		
	β	SE	p-value	β	SE	p-value	β	SE	p-value	β	SE	p-value
Intercept	0.408	0.050	0.000**	0.273	0.064	0.000**	0.717	0.060	0.000**	0.406	0.047	0.000**
time	-0.057	0.009	0.000**	-0.033	0.011	0.003**	-0.069	0.009	0.000**	-0.075	0.011	0.000**
age	-0.021	0.004	0.000**	-0.014	0.005	0.004**	-0.031	0.004	0.000**	-0.018	0.003	0.000**
age*time	-0.005	0.001	0.000**	-0.005	0.001	0.000**	-0.002	0.001	0.007**	-0.005	0.001	0.000**
Log tau	-0.014	0.048	0.780	0.038	0.062	0.545	-0.088	0.058	0.128	-0.027	0.045	0.554
Log tau*time	-0.019	0.009	0.035*	-0.023	0.011	0.031*	-0.006	0.009	0.508	-0.023	0.011	0.036
Baseline PA	0.000	0.007	0.988	-0.002	0.009	0.872	0.012	0.009	0.161	-0.002	0.007	0.760
PA*time	0.001	0.001	0.502	0.001	0.002	0.540	0.002	0.001	0.198	0.000	0.002	0.943
PA*age	0.000	0.001	0.914	0.000	0.001	0.825	-0.001	0.001	0.484	0.000	0.001	0.891
PA*age*time	0.000	0.000	0.633	0.000	0.000	0.263	0.000	0.000	0.219	0.000	0.000	0.379
Log tau*PA	-0.002	0.009	0.786	-0.005	0.012	0.684	0.011	0.011	0.305	-0.001	0.008	0.904
Log tau*PA*time	0.000	0.002	0.780	0.001	0.002	0.561	0.001	0.002	0.395	-0.001	0.002	0.547

All models adjusted for age, race, sex, education, chronic medical conditions, and APOE4 and each of their interactions with time.
p<.05*, p<.01**

eTable 2. Longitudinal Association of Categorical Variables: Physical Activity and Total Tau With Global Cognitive Function

	Low Total Tau (N=611)			High Total Tau (N=548)		
	β	SE	p-value	β	SE	p-value
Intercept	0.280	0.068	0.000**	0.442	0.078	0.000**
time	-0.051	0.011	0.000**	-0.066	0.016	0.000**
Medium PA	0.131	0.059	0.027**	0.037	0.064	0.569
High PA	0.115	0.061	0.062	0.037	0.070	0.595
Medium PA*time	0.001	0.010	0.959	0.038	0.014	0.006**
High PA *time	0.014	0.010	0.187	0.027	0.015	0.066

*PA: Little activity (responded to at least four items and reported little activity for all responses), Medium activity (< 150 mins/ wk), High activity (\geq 150 mins/ wk)
 Little activity is referent.

Total Tau: Low (\leq .40 pg/mL), High (> .40 pg/mL)

All models adjusted for age, race, sex, education, chronic medical conditions, and APOE4 and each of their interactions with time.
 p<.05*, p<.01**

eTable 3. Longitudinal Association of Categorical Variables: Physical Activity and Total Tau With Cognitive Outcomes

	Episodic Memory						Perceptual Speed						MMSE					
	Low Total Tau (N=607)			High Total Tau (N=543)			Low Total Tau (N=599)			High Total Tau (N=521)			Low Total Tau (N=611)			High Total Tau (N=549)		
	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value
Intercept	0.119	0.089	0.182	0.279	0.098	0.005**	0.668	0.085	0.000	0.819	0.093	0.000**	0.321	0.061	0.000**	0.414	0.076	0.000**
time	-0.021	0.014	0.129	-0.035	0.019	0.068	-0.070	0.012	0.000	-0.091	0.016	0.000**	-0.077	0.013	0.000**	-0.077	0.021	0.000**
Medium PA	0.139	0.078	0.075	0.088	0.081	0.281	0.090	0.074	0.223	0.003	0.076	0.964	0.067	0.053	0.207	0.013	0.062	0.831
High PA	0.112	0.080	0.161	-0.003	0.088	0.969	0.074	0.076	0.333	0.068	0.082	0.407	0.066	0.055	0.226	0.083	0.068	0.219
Medium PA*time	-0.008	0.013	0.552	0.026	0.017	0.117	0.011	0.011	0.329	0.031	0.014	0.025*	0.015	0.012	0.209	0.047	0.018	0.007**
High PA*time	0.007	0.013	0.613	0.036	0.018	0.049	0.016	0.011	0.134	0.031	0.015	0.034*	0.025	0.012	0.034*	0.014	0.019	0.456

*PA: Little activity (responded to at least four items and reported little activity for all responses), Medium activity (< 150 mins/ wk), High activity (>150 mins/ wk)

Little activity is referent

Total Tau: Low (\leq .40 pg/mL), High ($>$.40 pg/mL)

All models adjusted for age, race, sex, education, chronic medical conditions, and APOE4 and each of their interactions with time.

$p < .05^*$, $p < .01^{**}$

eTable 4. Baseline Level of Episodic Memory, Perceptual Speed and MMSE

Episodic Memory					
	Estimate (95% CI)		Difference (95% CI)		% Difference
Low Tau					
Little PA	0.119	(-0.056, 0.294)	Ref		Ref
Medium PA	0.258	(0.098, 0.417)	0.139	(-0.014, 0.292)	>100%
High PA	0.232	(0.085, 0.378)	0.112	(-0.045, 0.27)	94%
High Tau					
Little PA	0.279	(0.087, 0.471)	Ref		Ref
Medium PA	0.366	(0.181, 0.552)	0.088	(-0.072, 0.247)	32%
High PA	0.275	(0.092, 0.459)	-0.003	(-0.176, 0.169)	1%
Perceptual Speed					
	Estimate (95% CI)		Difference (95% CI)		% Difference
Low Tau					
Little PA	0.668	(0.501, 0.835)	Ref		Ref
Medium PA	0.758	(0.605, 0.91)	0.090	(-0.055, 0.235)	13%
High PA	0.741	(0.603, 0.88)	0.074	(-0.076, 0.223)	11%
High Tau					
Little PA	0.819	(0.638, 1.001)	Ref		Ref
Medium PA	0.823	(0.647, 0.998)	0.003	(-0.147, 0.153)	0.37%
High PA	0.887	(0.714, 1.06)	0.068	(-0.093, 0.229)	8%
MMSE					
	Estimate (95% CI)		Difference (95% CI)		% Difference
Low Tau					
Little PA	0.321	(0.202, 0.441)	Ref		Ref
Medium PA	0.388	(0.279, 0.497)	0.067	(-0.037, 0.171)	21%
High PA	0.388	(0.287, 0.488)	0.066	(-0.041, 0.174)	21%
High Tau					
Little PA	0.414	(0.265, 0.562)	Ref		Ref
Medium PA	0.427	(0.283, 0.571)	0.013	(-0.109, 0.136)	3%
High PA	0.497	(0.355, 0.639)	0.083	(-0.05, 0.216)	20%

*PA: Little activity (responded to at least four items and reported little activity for all responses), Medium activity (< 150 mins/ wk), High activity (\geq 150 mins/ wk)

Total Tau: Low (\leq .40 pg/mL), High (> .40 pg/mL)

All models adjusted for age, race, sex, education, chronic medical conditions, and APOE4.