



THE EFFECTS OF PHYSICAL ACTIVITY ON AMINO-TERMINAL B-TYPE NATRIURETIC PEPTIDE CONCENTRATIONS IN A COHORT OF OLDER ADULTS FREE OF HEART FAILURE

ACC Poster Contributions

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Background: Longitudinal rise in NT-proBNP level can identify older adults at risk of new-onset heart failure (HF). We assessed if habitual physical activity was associated with a lower probability of an increase in NT-proBNP level and future risk of HF.

Methods: NT-proBNP was measured at baseline and 2-3 years later in 2,975 community-dwelling older adults free of HF from the Cardiovascular Health Study. Participants were divided into quartiles (Q) based on weekly kcal of leisure activity. Within each quartile the odds ratio of a rise in NT-proBNP and hazard ratio for HF (median follow-up 10.3 years) was estimated. A rise in NT-proBNP was previously defined as: an increase > 25% to >190 pg/mL, or for baseline NT-proBNP ≥ 190 pg/mL, only an increase of >25%

Results: Greater activity was associated with lower prevalence of risk factors and baseline NT-proBNP. The risks of a rise in NT-proBNP or developing HF were lower with greater activity (table). For those with a rise in NT-proBNP, the rate of HF per 100-person year was similar irrespective of the amount of activity for baseline NT-proBNP<190 pg/mL, Q1 [3.0, 95%CI 2.1-4.3] vs Q4 [2.7, 95%CI 1.8-3.9], p=0.6 and high across all quartiles for baseline NT-proBNP≥190 pg/mL, Q1 [7.1, 95%CI 5.3-9.6] vs Q4 [5.0, 95%CI 3.2-7.8], p=0.009

Conclusions: Greater physical activity is associated with attenuated risk for NT-proBNP rise over time and HF. Absence of NT-proBNP rise may be a surrogate for identifying the efficacy of exercise in preventing progression to symptomatic HF.

Leisure-Time Activity (Kcal/week)	Baseline NT-proBNP (<190 pg/mL)		Baseline NT-proBNP (≥190 pg/mL)	
	OR* of NT-proBNP rise	HR* for new-onset HF	OR* of NT-proBNP rise	HR* for new-onset HF
Q1 (<105)	Reference	Reference	Reference	Reference
Q2 (105-539)	1.12 (0.83, 1.52)	0.98 (0.76, 1.28)	0.86 (0.57, 1.32)	0.74 (0.53, 1.03)
Q3 (540-1394)	0.84 (0.60, 1.15)	0.80 (0.60, 1.05)	0.82 (0.54, 1.28)	0.86 (0.62, 1.20)
Q4 (>1394)	0.73 (0.53, 1.02)	0.77 (0.58, 1.02)	0.60 (0.38, 0.96)	0.68 (0.48, 0.99)
Test for trend	p=.02	p=.03	p=.04	p=.03

HR, Hazard Ratio (95% confidence interval); HF, heart failure; OR, Odds ratio (95% confidence interval)

* Adjusted for age, gender, race hypertension, diabetes, coronary heart disease, vascular claudication, emphysema, baseline NT-proBNP