



SEDENTARY BEHAVIOR IS ASSOCIATED WITH CORONARY ARTERY CALCIFICATION IN THE DALLAS HEART STUDY

Poster Contributions
Poster Hall B1
Sunday, March 15, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Statins, Cholesterol Guidelines and Lifestyle
Abstract Category: 21. Prevention: Clinical
Presentation Number: 1178-114

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Background: Prior research shows no definitive relationship between physical activity (PA) and coronary artery calcification (CAC). The relationship between sedentary behavior and CAC, independent of PA, has not been investigated.

Methods: Participants of the Dallas Heart Study free of known CVD with accelerometer-measured PA (≥ 4 days) and CAC scoring, as measured by CT were included. Moderate-to-vigorous physical activity (MVPA) was quantified using established intensity thresholds (>1500 counts-per-minute, CPM). Sedentary time was defined as < 100 CPM. The association of sedentary time with CAC prevalence (CAC > 10) and continuous CAC score were assessed using logistic and Tobit regression analyses, respectively.

Results: The study cohort included 2,031 subjects, 62% women, mean age 50 ± 10 years. Participants spent an average of 5.1 (range 1.1-11.6) hours in sedentary time during waking hours. MVPA was not associated with CAC after adjustment for covariates. Higher sedentary time was associated with older age, higher BMI, diabetes, and hypertension. Sedentary time was associated with CAC >10 (OR 1.10 per hour, $p < 0.05$) in multivariable analyses, including adjustment for MVPA (Table). Each hour of sedentary time was associated with a 14% increase in CAC ($p < 0.05$).

Conclusion: Increasing sedentary time is associated with CAC, independent of MVPA and traditional CVD risk factors. Future studies are needed to determine if reducing sedentary time improves coronary atherosclerotic burden.

Association between CAC and accelerometer-derived sedentary time				
Model	Logistic regression Binary Outcome: CAC >10		Tobit analysis Outcome: CAC censored at 0	
	OR (per hour) (95% CI)	P-value	Beta (SE)	P-value
Model 1	1.09 (1.02 - 1.17)	0.01	0.19 (0.05)	0.0003
Model 2	1.07 (1.00 - 1.15)	0.07	0.12 (0.05)	0.02
Model 3	1.10 (1.01 - 1.19)	0.03	0.15 (0.06)	0.009
Model 4	1.10 (1.01 - 1.21)	0.04	0.13 (0.07)	0.046

Betas are given per 1 hour of sedentary time
 Model 1 covariates: age, gender, ethnicity
 Model 2 covariates: Model 1 + BMI, SBP, total cholesterol, HDL, statin, DM, Smoking
 Model 3 covariates: Model 2 + income, education, marital status, employment
 Model 4 covariates: Model 3 + moderate-to-vigorous physical activity (MVPA)