

Appendix
Physical Activity, Sedentary Behavior, and Retirement: The Multi-Ethnic Study of Atherosclerosis
Jones et al.

Appendix Table 1. Classification of Retirement Status by Reported Employment Category in Main and Four Sensitivity Analyses

MESA employment category	Main analyses		Separate sensitivity analyses		
		Two-tiered	Fully time varying	Strict	Exclude non-workers
1. Employed (or self-employed) full-time	Not retired	Not retired	Not retired	Not retired	Not retired
2. Employed (or self-employed) part-time	Not retired	Not retired	Not retired	Not retired	Not retired
3. Employed, but on leave for health reasons	Not retired	Not retired	Not retired	Not retired	Not retired
4. Employed but temporarily away from job (other than health reasons)	Not retired	Not retired	Not retired	Not retired	Not retired
5. Unemployed or laid off, <6 months	Not retired	Not retired	Not retired	Not retired	Excluded
6. Unemployed or laid off, ≥6 months	Not retired	Not retired	Not retired	Not retired	Excluded
7. Homemaker, not working outside home	Not retired	Not retired	Not retired	Not retired	Excluded
8. Retired from usual occupation and not working	Retired	Retired and not working	Retired	Retired if reported 0 working hours and 0 occupational physical activity	Retired
9. Retired from usual occupation and volunteering	Retired	Retired and not working	Retired	Retired if reported 0 working hours and 0 occupational physical activity	Retired
10. Retired from usual occupation and working for pay	Retired	Retired and working	Retired	Retired if reported 0 working hours and 0 occupational physical activity	Retired
Variation of retirement status over time	Retired for all visits after first meeting retirement definition	Retired only at visits meeting retirement definition; participants may be reclassified as employed after being classified as retired			Retired for all visits after first meeting retirement definition

MESA, Multi-Ethnic Study of Atherosclerosis

Appendix Table 2. Assignment of MET Values by Domain and Intensity of Physical Activity

Domain	Example activity	MET value
Non-walking leisure activities	Dancing	5.0
	Team and dual sports	7.0
	Individual activities	3.5
	Conditioning activity (moderate effort)	5.5
	Conditioning activity (vigorous effort)	7.0
Walking	Recreational walking (for exercise)	3.5
	Transport walking (to get places)	3.0
Household/yard activities	Cooking, dishes, shopping (light effort)	2.5
	Scrubbing, mopping, mowing, raking (moderate effort)	4.0
	Digging, shoveling snow (vigorous effort)	6.5
Caregiving activities	Bathing, feeding, changing diapers (light effort)	2.5
	Lifting, pushing wheelchair (moderate effort)	4.0
Occupational/volunteer activities	Sitting (light effort)	1.5
	Standing (light effort)	2.5
	Lifting, pushing, sustained walking (moderate effort)	3.0
	Manual labor, loading/unloading (vigorous effort)	7.0

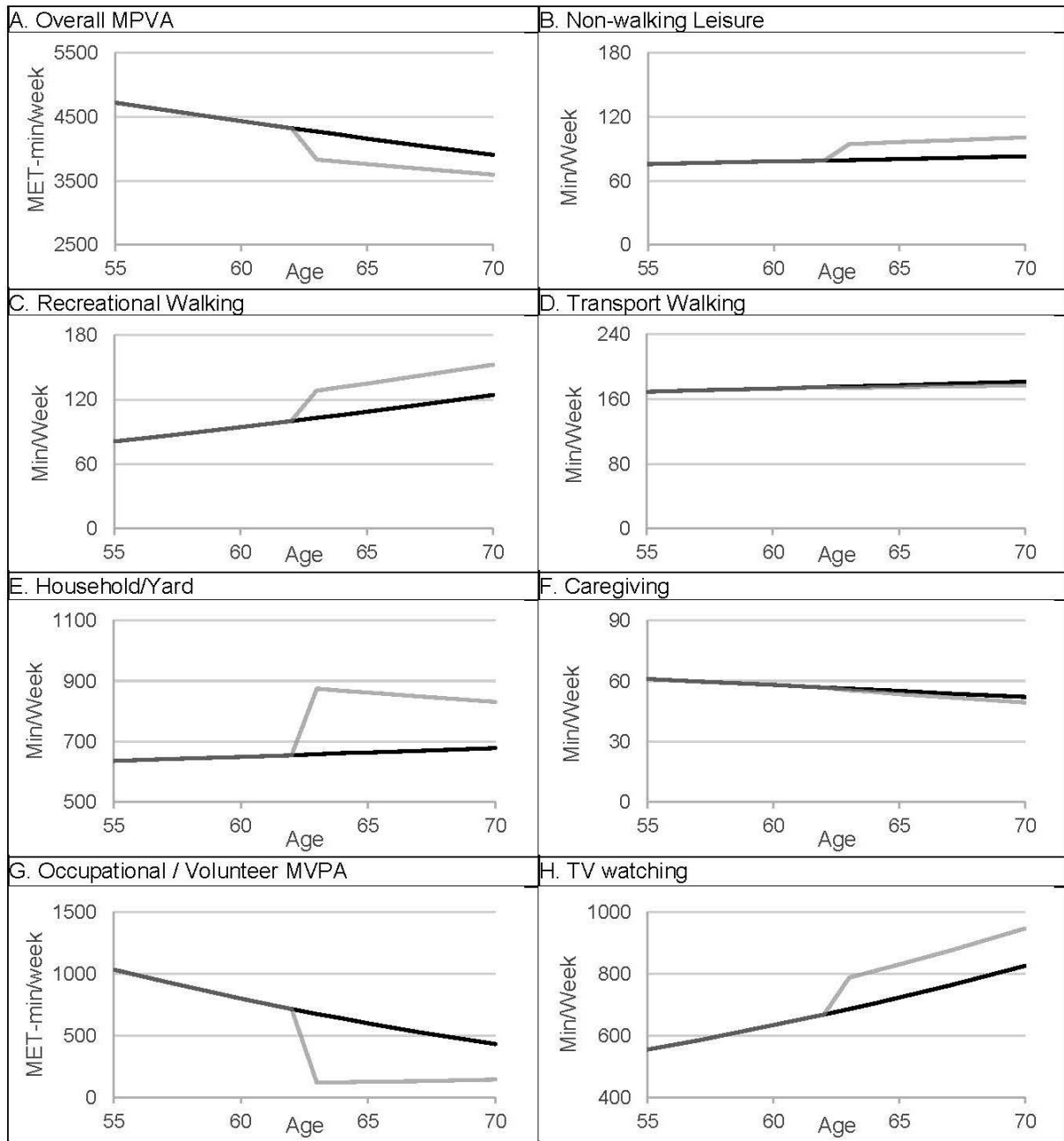
Appendix Table 3. Definition of Chronic Conditions for Sensitivity Analyses Among Participants Healthy Throughout Follow-up^a and With Chronic Conditions

Chronic condition	Definition
Cardiovascular disease	Coronary heart disease, angina, coronary artery revascularization, stroke, congestive heart failure, or peripheral vascular disease based physician review of abstracted medical records
Depression	Centers for Epidemiological Studies Depression Scale score ≥ 16 at MESA exam 5
Cognitive impairment	Cognitive Abilities Screening Instrument score < 74 at MESA exam 5 or ICD-9 codes from hospital records indicative of dementia
Cancer	Self-report of cancer other than non-melanoma skin cancer
Chronic obstructive pulmonary disease	ICD-9 codes from hospital records

^aDefinition of good health adapted from Shea et al., *PLoS One*. 2016;11(11).

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Appendix Figure 1. Physical activity and TV watching by retirement status, overall sample.

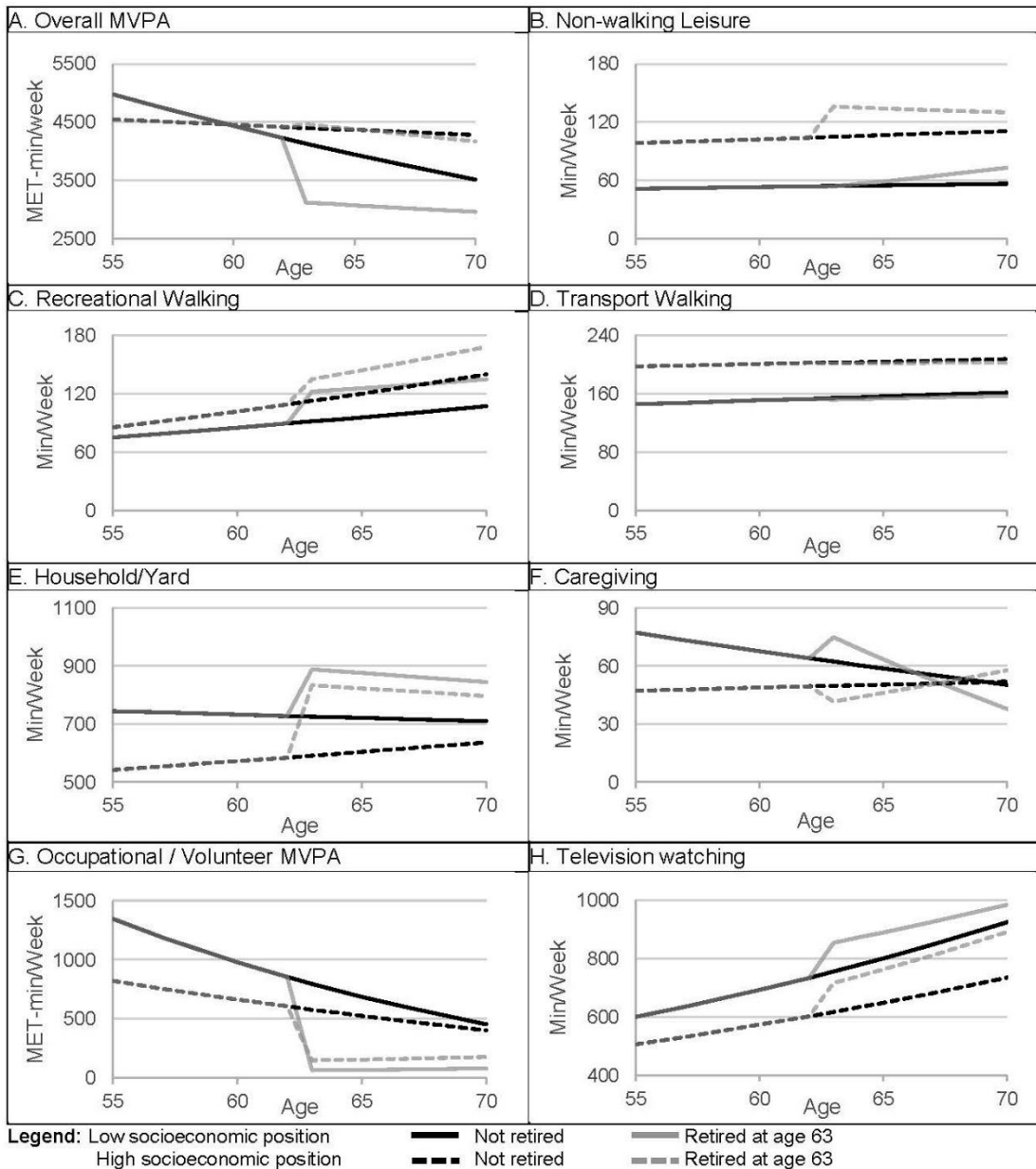


Legend: — Not retired — Retired at age 63

Notes: Estimated patterns of physical activity (overall and by domain) and TV watching by retirement status in the overall sample (N=4,091 MESA participants). Lines represent patterns for the average person who did not retire during follow-up (black line) and who retired at age 63 years (median retirement age in this cohort, grey line). Estimates back transformed from fixed-effect models of log-transformed outcomes adjusted for time-varying partnership status, self-reported health, and nine chronic conditions (asthma, emphysema, arthritis, high cholesterol, hypertension, diabetes, kidney disease, cancer, cardiovascular disease). Note scale of y-axis varies by domain. Data for these figures are presented in Table 2.

MVPA moderate-to-vigorous physical activity

Appendix Figure 2. Physical activity and TV watching by retirement status and socioeconomic position.



Notes: Estimated patterns of physical activity (overall and by domain) and TV watching by retirement status and socioeconomic position (SEP; N=2003 low SEP; N=2088 high SEP). Lines represent patterns for the average person who did not retire during follow-up (black line) and who retired at age 63 years (median retirement age in this cohort, grey line). Estimates back-transformed from fixed-effect models of log-transformed outcomes stratified by SEP and adjusted for time-varying partnership status, self-rated health, and nine chronic conditions (asthma, emphysema, arthritis, high cholesterol, hypertension, diabetes, kidney disease, cancer, cardiovascular disease). SEP was a composite index of education, income, and four indicators of wealth. Note scale of y-axis varies by domain. Data for these figures presented in Table 3.

MVPA, moderate-to-vigorous physical activity

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Appendix Table 4. Change^a in Physical Activity and TV Watching by Retirement and SEP Among Participants With Chronic Conditions^b (N=1,435)

Behavior	Low SEP (N=811)			High SEP (N=624)		
	Mean change associated with retirement ^c (95% CI)	Mean 5-year change ^d (95% CI)		Mean change associated with retirement ^c (95% CI)	Mean 5-year change ^d (95% CI)	
		Not retired	Retired		Not retired	Retired
MVPA	0.67 (0.58, 0.79)	0.90 (0.85, 0.95)	1.01 (0.86, 1.19)	0.94 (0.82, 1.07)	0.97 (0.92, 1.02)	0.97 (0.84, 1.12)
Non-walking leisure	1.02 (0.91, 1.15)	1.04 (1.00, 1.08)	1.12 (1.00, 1.27)	1.24 (1.09, 1.40)	0.99 (0.95, 1.04)	0.91 (0.79, 1.03)
Recreation walking	1.13 (0.98, 1.31)	1.04 (0.99, 1.09)	1.09 (0.94, 1.27)	1.03 (0.90, 1.18)	1.04 (0.99, 1.10)	1.09 (0.94, 1.26)
Transport walking	0.95 (0.81, 1.11)	1.06 (1.01, 1.12)	1.04 (0.88, 1.22)	1.01 (0.85, 1.14)	1.02 (0.96, 1.07)	1.01 (0.86, 1.18)
Household/yard activity	1.12 (0.97, 1.29)	0.97 (0.93, 1.02)	1.03 (0.89, 1.20)	1.18 (1.04, 1.34)	1.03 (0.98, 1.08)	0.97 (0.85, 1.10)
Caregiving activity	0.94 (0.79, 1.13)	0.97 (0.92, 1.03)	0.94 (0.79, 1.15)	0.80 (0.68, 0.95)	0.97 (0.91, 1.03)	1.27 (1.07, 1.51)
Occupational/ volunteer MVPA	0.40 (0.34, 0.48)	0.80 (0.75, 0.85)	0.93 (0.77, 1.12)	0.57 (0.48, 0.67)	0.91 (0.86, 0.97)	1.06 (0.89, 1.27)
TV watching	1.10 (0.96, 1.28)	1.16 (1.10, 1.22)	1.12 (0.97, 1.30)	1.06 (0.93, 1.22)	1.18 (1.12, 1.24)	1.34 (1.16, 1.55)

^aValues are exponentiated coefficients from linear models of log-transformed outcomes. Values can be interpreted as percentage differences, for example 1.07 represents a 7% increase in the outcome, conditional on adjustment variables (self-reported health, partnership status, and chronic conditions: asthma, emphysema, arthritis flare up, high cholesterol, hypertension, diabetes, kidney disease, cancer, cardiovascular disease).

^bRestricted to participants with cardiovascular disease, depression, cognitive impairment, cancer, or chronic obstructive pulmonary disease during follow-up.

^cExponentiated mean difference in log-transformed outcome associated with retirement, conditional on adjustment variables.

^dExponentiated mean difference in log-transformed outcome associated with 5-year increase in age among retired and not retired participants, conditional on adjustment variables.

MVPA moderate to vigorous physical activity; SEP socioeconomic position