

Supplementary Digital Content: Table 1A. Partition and isotemporal substitution models for all-cause mortality in less active participants, overall and by sex - the NIH-AARP Diet & Health Study

Less Overall Physical Activity (< 2 hrs/d)

Variable Group 1

	Sedentary		Exercise		Non-exercise		Total time	
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI
ALL Participants								
Partition	1.023	1.016, 1.030	0.594	0.547, 0.646	0.713	0.675, 0.754	-	
Replacement/substitution	-		0.581	0.535, 0.631	0.698	0.660, 0.737	1.023	1.016, 1.030
MEN								
Partition	1.020	1.010, 1.029	0.619	0.563, 0.682	0.715	0.665, 0.769	-	
Replacement/substitution	-		0.608	0.552, 0.669	0.701	0.652, 0.754	1.020	1.010, 1.029
WOMEN								
Partition	1.028	1.017, 1.039	0.534	0.453, 0.630	0.705	0.647, 0.768	-	
Replacement/substitution	-		0.520	0.441, 0.613	0.686	0.629, 0.748	1.028	1.017, 1.039

Variable Group 2

	Sedentary		Exercise		Household		Lawn/garden		Other walking		Total time	
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI
ALL Participants												
Partition	1.021	1.014, 1.028	0.592	0.545, 0.643	0.816	0.758, 0.877	0.504	0.441, 0.576	0.678	0.580, 0.791	-	
Replacement/substitution	-		0.580	0.534, 0.630	0.799	0.742, 0.859	0.494	0.432, 0.564	0.664	0.568, 0.775	1.021	1.014, 1.028
MEN												
Partition	1.018	1.009, 1.027	0.617	0.561, 0.679	0.811	0.729, 0.901	0.554	0.478, 0.642	0.758	0.625, 0.920	-	
Replacement/substitution	-		0.606	0.551, 0.667	0.796	0.716, 0.886	0.544	0.470, 0.631	0.745	0.614, 0.904	1.018	1.009, 1.027
WOMEN												
Partition	1.026	1.015, 1.037	0.543	0.460, 0.640	0.811	0.734, 0.897	0.342	0.248, 0.470	0.559	0.432, 0.722	-	
Replacement/substitution	-		0.529	0.448, 0.624	0.790	0.714, 0.874	0.333	0.242, 0.458	0.544	0.421, 0.704	1.026	1.015, 1.037

Variable Group 3

	Sedentary		Light		Moderate-vigorous		Total time	
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI
ALL Participants								
Partition	1.021	1.014, 1.028	0.830	0.771, 0.895	0.590	0.554, 0.628	-	
Replacement/substitution	-		0.813	0.754, 0.877	0.578	0.542, 0.615	1.021	1.014, 1.028
MEN								
Partition	1.018	1.009, 1.027	0.852	0.764, 0.949	0.617	0.573, 0.664	-	
Replacement/substitution	-		0.837	0.750, 0.933	0.606	0.563, 0.653	1.018	1.009, 1.027
WOMEN								
Partition	1.026	1.015, 1.037	0.802	0.723, 0.889	0.528	0.467, 0.596	-	
Replacement/substitution	-		0.782	0.704, 0.868	0.514	0.455, 0.581	1.028	1.017, 1.038

Partition Models adjusted for each type of activity indicated (hrs/d), as well as Age (years), Education (< 12 yrs, high school graduate, some college, college graduate, unknown), Smoking history (never, stopped 10+ , stopped 5-9, stopped 1-4 years, stopped < 1 year, current smoker, unknown), Sleep duration (< 4, 4-5.9, 6-7.9, 8-9.9, 10+ hours/day, unknown), Overall health (excellent, very good, good, fair, Replacement/substitution models include each type of activity, total time (sum of active and sedentary) and the covariates listed above.

Supplementary Digital Content: Table 1 B. Partition and isotemporal substitution models for all-cause mortality in more active participants, overall and by sex - the NIH-AARP Diet & Health Study

More Overall Physical Activity (2+ hrs/d)

<u>Variable Group 1</u>	<u>Sitting</u>		<u>Exercise</u>		<u>Non-exercise</u>		<u>Total time</u>					
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI				
ALL Participants												
Partition	1.016	1.008, 1.023	0.922	0.892, 0.954	1.016	0.996, 1.035	-					
Replacement/substitution	-		0.908	0.877, 0.940	1.000	0.979, 1.021	1.016	1.008, 1.023				
MEN												
Partition	1.010	0.999, 1.020	0.92	0.882, 0.960	1.031	1.006, 1.057	-					
Replacement/substitution	-		0.911	0.872, 0.952	1.021	0.994, 1.049	1.010	0.999, 1.020				
WOMEN												
Partition	1.024	1.013, 1.036	0.933	0.881, 0.988	0.99	0.959, 1.021	-					
Replacement/substitution	-		0.911	0.860, 0.966	0.966	0.935, 0.999	1.024	1.013, 1.036				
<u>Variable Group 2</u>	<u>Sitting</u>		<u>Exercise</u>		<u>Household</u>		<u>Lawn/garden</u>		<u>Other walking</u>		<u>Total time</u>	
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI
ALL Participants												
Partition	1.015	1.008, 1.023	0.923	0.892, 0.955	1.037	1.008, 1.068	0.98	0.940, 1.021	1.008	0.951, 1.070	-	
Replacement/substitution	-		0.909	0.878, 0.942	1.022	0.991, 1.053	0.965	0.925, 1.006	0.993	0.936, 1.054	1.015	1.008, 1.023
MEN												
Partition	1.009	0.999, 1.019	0.922	0.884, 0.962	1.08	1.040, 1.122	0.969	0.922, 1.018	1.012	0.935, 1.095	-	
Replacement/substitution	-		0.914	0.875, 0.955	1.071	1.029, 1.114	0.96	0.913, 1.010	1.003	0.926, 1.086	1.009	0.999, 1.019
WOMEN												
Partition	1.024	1.012, 1.036	0.932	0.879, 0.987	0.985	0.942, 1.030	0.986	0.912, 1.067	1.011	0.924, 1.106	-	
Replacement/substitution	-		0.91	0.858, 0.965	0.962	0.918, 1.007	0.963	0.890, 1.042	0.987	0.901, 1.081	1.024	1.012, 1.036
<u>Variable Group 3</u>	<u>Sitting</u>		<u>Light</u>		<u>Moderate-vigorous</u>		<u>Total time</u>					
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI				
ALL Participants												
Partition	1.015	1.007, 1.023	1.059	1.021, 1.099	0.973	0.952, 0.995	-					
Replacement/substitution	-		1.044	1.005, 1.084	0.959	0.937, 0.982	1.021	1.014, 1.028				
MEN												
Partition	1.008	0.997, 1.018	1.139	1.087, 1.194	0.966	0.939, 0.994	-					
Replacement/substitution	-		1.131	1.076, 1.187	0.958	0.930, 0.988	1.008	0.997, 1.018				
WOMEN												
Partition	1.024	1.013, 1.036	0.958	0.904, 1.015	0.985	0.952, 1.020	-					
Replacement/substitution	-		0.935	0.881, 0.992	0.962	0.927, 0.997	1.024	1.013, 1.036				

Partition Models adjusted for each type of activity indicated (hrs/d), as well as Age (years), Education (< 12 yrs, high school graduate, some college, college graduate, unknown), Smoking history (never, stopped 10+ , stopped 5-9, stopped 1-4 years, stopped < 1 year, current smoker, unknown), Sleep duration (< 4, 4-5.9, 6-7.9, 8-9.9, 10+ hours/day, unknown), Overall health (excellent, very good, good, fair, poor, unknown), Body Mass Index (< 25, 25-29.9, 30+ kg/m2, unknown), and Sex among All Participants
 Replacement/substitution models include each type of activity, total time (sum of active and sedentary) and the covariates listed above.