

## SUPPLEMENTAL MATERIAL.

**Image 1.** Prompts from the survey regarding weightlifting behavior.

31. In the past 12 months did you:		[IF YES:] In the past 12 months, how often did you do this activity?	
a. Jog or run outside or on a treadmill?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week
b. Ride a bicycle or an exercise bicycle?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week
c. Swim?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week
d. Do aerobics, water aerobics or aerobic dancing?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week
e. Do other dancing?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week
f. Do calisthenics or exercise?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week
g. Garden or do yard work?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week
h. Lift weights?	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Less than 1 time/month <input type="radio"/> 1-3 times/month <input type="radio"/> 1-2 times/week	<input type="radio"/> 3-6 times/week <input type="radio"/> 7+ times/week

Supplemental table 1. **Muscle strengthening and aerobic exercise associated with all-cause and cause-specific mortality with and without mutual adjustment (HR and 95% CIs).** Weighted estimates to the whole cohort are presented.

	All cause mortality HR (95% CI)			CVD mortality HR (95%CI)			Cancer mortality HR (95%CI)			
	Deaths (n)	Model A	Model B	Model C	Model A	Model B	Model C	Model A	Model B	Model C
<b>Weightlifting</b> Yes (vs. no)	3,835	0.79 (0.76-0.81)	0.82 (0.79-0.85)	0.91 (0.88-0.94)	0.76 (0.76-0.80)	0.81 (0.77-0.86)	0.91 (0.86-0.97)	0.85 (0.80-0.91)	0.88 (0.82-0.93)	0.96 (0.90-1.02)
<b>Weightlifting frequency</b>										
Never	22,086	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)	1.00 (ref)
Less than once/month	300	0.82 (0.74-0.92)	0.86 (0.77-0.96)	0.84 (0.76-0.94)	0.84 (0.70-1.03)	0.88 (0.73-1.08)	0.86 (0.71-1.05)	0.88 (0.72-1.07)	0.92 (0.75-1.12)	0.91 (0.75-1.11)
One to three times/month	874	0.80 (0.75-0.85)	0.82 (0.77-0.87)	0.85 (0.79-0.91)	0.82 (0.73-0.92)	0.85 (0.76-0.96)	0.89 (0.79-0.99)	0.80 (0.71-0.90)	0.82 (0.73-0.93)	0.85 (0.75-0.96)
One to two times/week	1,712	0.76 (0.73-0.80)	0.79 (0.75-0.83)	0.86 (0.82-0.91)	0.73 (0.97-0.79)	0.78 (0.72-0.85)	0.85 (0.78-0.93)	0.88 (0.81-0.96)	0.90 (0.83-0.98)	0.97 (0.89-1.06)
Three to 7+ times/week	2,123	0.79 (0.75-0.82)	0.82 (0.79-0.86)	0.93 (0.89-0.98)	0.76 (0.71-0.82)	0.83 (0.77-0.89)	0.95 (0.88-1.03)	0.81 (0.75-0.88)	0.84 (0.77-0.91)	0.93 (0.85-1.01)
Per unit increase in weightlifting category		0.93 (0.92-0.94)	0.94 (0.93-0.95)	0.97 (0.96-0.98)	0.92 (0.91-0.94)	0.94 (0.93-0.96)	0.97 (0.96-0.99)	0.95 (0.93-0.96)	0.96 (0.94-0.97)	0.98 (0.96-0.99)
<i>P for trend</i>		<.001	<.0001	<.0001	<.0001	<.0001	.002	<.0001	<.0001	0.03
<b>Aerobic Exercise</b>			MVPA cardio	1.0			1.0 (ref)			1.0 (ref)
Inactive	11,203		P(.0001)	0.76 (0.74-0.78)			0.73 (0.69-0.77)			0.78 (0.74-0.82)
Insufficient	9,574		0.85-0.83-	0.68 (0.65-0.70)			0.65 (0.62-0.69)			0.70 (0.66-0.75)
Meets Guidelines	5,365		0.86)	0.66 (0.63-0.70)			0.65 (0.60-0.71)			0.70 (0.64-0.77)
Highly active	1,788									

Model A adjusted for age at follow-up questionnaire, sex, education, smoking, alcohol intake, and race.

Model B includes Model A plus current BMI category and number of comorbidities.

Model C includes Model B plus each group of aerobic activity guidelines (inactive 0 minutes of activity, insufficient of 1-149 minutes of activity, meets guidelines 150-300 minutes of activity, highly active of 301+ minutes of activity).

**Supplemental Table 2.** Association of weightlifting with all-cause mortality stratified by level of aerobic activity. Hazard ratios (HR) and 95% confidence intervals are presented, weighted estimates to the whole cohort.

		Aerobic activity			
		None	Some	Meets	Exceeds
Weightlifting	None	1.00 <i>reference</i>	1.00 <i>reference</i>	1.00 <i>reference</i>	1.00 <i>reference</i>
	<1x/month	0.77 (0.65-0.92)	0.88 (0.73-1.06)	1.00 (0.78-1.29)	0.77 (0.40-1.50)
	1-3x/month	0.84 (0.74-0.95)	0.87 (0.79-0.97)	0.84 (0.73-0.96)	0.83 (0.62-1.12)
	1-2x/week	0.80 (0.70-0.91)	0.90 (0.84-0.97)	0.88 (0.81-0.96)	0.77 (0.64-0.93)
	3-7+x/week	0.90 (0.79-1.03)	0.99 (0.92-1.07)	0.90 (0.83-0.97)	0.95 (0.85-1.05)
	<i>Per unit increase</i>	0.98 (0.95-1.00)	0.97 (0.95-0.98)	0.98 (0.97-0.99)	0.95 (0.92-0.97)
	<i>P for trend</i>	0.08	.001	0.02	.001

Models adjusted for age at questionnaire (where weightlifting was assessed), sex, education, smoking, alcohol intake, current BMI, race, and number of comorbidities. Aerobic physical activity categories are none (0 minutes per week), some (1-149 minutes/week), meets (150-300 minutes/week) and exceeds (301+ minutes/week). Number of observed deaths per cell are recorded beneath the hazard ratio estimate and 95% confidence interval.