

SUPPLEMENTARY MATERIAL

Associations between sedentary behavior, physical activity frequency, and asthma: insights from the National Health and Nutrition Examination Survey 2009-2018

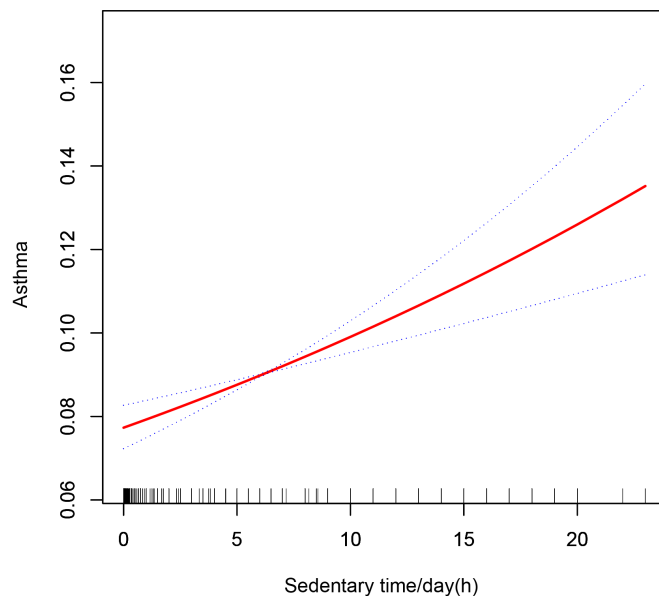
Yanhao Chen,^{1*} Xiang Li,^{1*} Mengqi Wu,^{2*} Jiaqi Peng,³ Jiao Zhang,³
Jie Bao,³ Yongsheng Fan,⁴ Shuo Huang³

¹The Second School of Clinical Medicine, Zhejiang Chinese Medical University, Hangzhou; ²Hangzhou Hospital of Traditional Chinese Medicine of Zhejiang Chinese Medical University, Hangzhou; ³School of Basic Medical Sciences, Zhejiang University of Chinese Medicine, Hangzhou; ⁴The Second Affiliated Hospital of Zhejiang Chinese Medical University (Xinhua Hospital of Zhejiang Province), Hangzhou, China

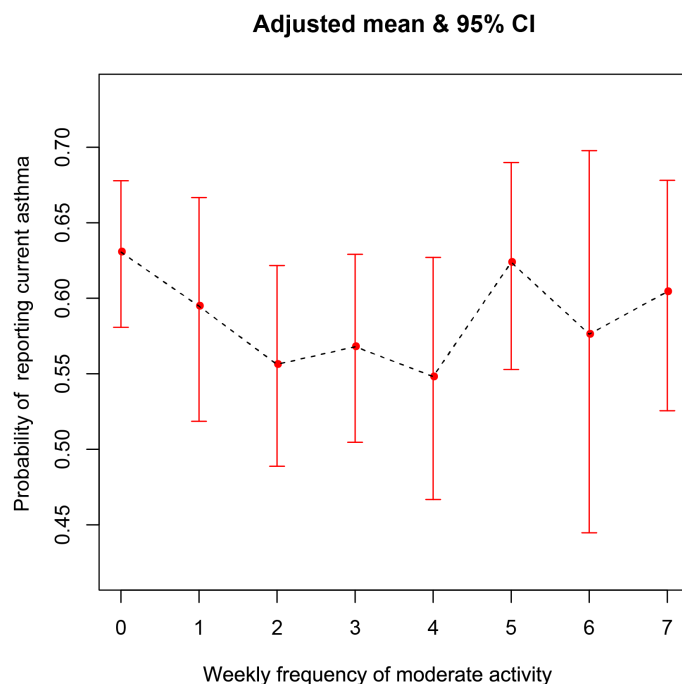
*These authors contributed equally to this work.

Correspondence: Shuo Huang, School of Basic Medical Sciences, Zhejiang Chinese Medical University, Hangzhou, China. E-mail: hs930928@163.com

Key words: sedentary behavior, physical activity, asthma prevalence, current asthma, NHANES.



Supplementary Figure 1. Association between sedentary behavior and asthma prevalence. The solid red line represents the prevalence of asthma as it relates to daily sedentary time. The dashed lines indicate the 95% confidence intervals, demonstrating the variability around the estimates. Adjustments were made for gender, age, race and ethnicity, educational level, poverty income ratio, BMI, moderate and vigorous leisure activities, smoking status, and coronary heart disease.



Supplementary Figure 2. Association between weekly frequency of moderate physical activity and reporting current asthma. The adjusted mean prevalence of current asthma stratified by weekly instances of moderate physical activity, which range from 0 to 7 times per week, is represented. The data points show the adjusted mean prevalence, while the vertical bars denote the 95% confidence intervals. Adjusted for age, gender, race, education level, PIR, smoking status, hypertension, diabetes, sedentary time, vigorous physical activities, and coronary heart disease. CI, confidence interval.

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Supplementary Table 1. Results of subgroup analysis and interaction analysis.

Subgroup	OR(95%CI)	p	p for interaction
Gender			0.548
Male	1.03 (1.02, 1.05)	<0.001*	
Female	1.02 (1.01, 1.04)	<0.001*	
Race/ethnicity			0.127
Mexican American	1.05 (1.02, 1.09)	0.002*	
Other Hispanic	1.01 (0.98, 1.05)	0.467	
Non-Hispanic White	1.04 (1.02, 1.05)	<0.001*	
Non-Hispanic Black	1.02 (1.00, 1.04)	0.040*	
Other race	1.00 (0.97, 1.03)	0.916	
PIR			0.921
<1.3	1.03 (1.01, 1.04)	0.005*	
>=1.3, <3.5	1.03 (1.01, 1.04)	0.003*	
>=3.5	1.03 (1.01, 1.06)	0.013*	
Education level			0.123
Minor	1.01 (0.98, 1.04)	0.4336	
Under high school	1.05 (1.02, 1.07)	<0.001*	
High school or equivalent	1.04 (1.02, 1.07)	<0.001*	
Above high school	1.02 (1.00, 1.03)	0.070	
BMI			0.339
<=20	1.00 (0.96, 1.05)	0.955	
>20, <=25	1.04 (1.02, 1.07)	0.001*	
>25, <=30	1.02 (1.00, 1.04)	0.072	
>30	1.03 (1.01, 1.04)	<0.001*	
Smoking			0.858
Never	1.03 (1.02, 1.05)	<0.001*	
Current	1.02 (1.00, 1.05)	0.084	
Former	1.03 (1.00, 1.05)	0.046*	
Unknown	1.02 (0.99, 1.05)	0.123	
Drinking			0.278
Never	1.05 (1.02, 1.09)	0.005*	
Current	1.05 (1.01, 1.09)	0.009*	
Past	1.02 (1.00, 1.04)	0.013*	
Unknown	1.02 (1.00, 1.04)	0.018*	
Hypertension			0.182
No	1.03 (1.02, 1.05)	<0.001*	
Yes	1.02 (1.00, 1.04)	0.053	
Diabetes			0.664
No	1.03 (1.01, 1.04)	<0.001*	
Yes	1.03 (1.01, 1.06)	0.015*	
Coronary heart disease			0.704
No	1.03 (1.02, 1.04)	<0.001*	
Yes	1.02 (0.98, 1.06)	0.399	
Familial asthma			0.2120
No	1.02 (1.00, 1.03)	0.072	
Yes	1.04 (1.02, 1.05)	<0.001*	

Adjustments were made for other variables, including age, gender, race, education level, PIR, smoking status, hypertension, diabetes, moderate physical activities, vigorous physical activities, and coronary heart disease, excluding the categorical variable being analyzed. * $p < 0.05$.

Supplementary Table 2. Association of vigorous physical activity with current asthma status among individuals with a prior asthma diagnosis

Exposure	Model 1 (n=5,191)	Model 2 (n=5,191)	Model 3 (n=5,191)
Vigorous physical activity			
No OR(95%CI), <i>p</i>	Reference	Reference	Reference
Yes OR(95%CI), <i>p</i>	0.62 (0.55, 0.70) <0.001*	0.85 (0.74, 0.97) 0.019*	0.96 (0.83, 1.11) 0.570

Model 1: crude model. Model 2: adjusted for age, gender, race, education level, and PIR. Model 3: adjusted for age, gender, race, education level, PIR, smoking status, hypertension, diabetes, sedentary time, moderate physical activities, and coronary heart disease.

**p* < 0.05.

Supplementary Table 3. Threshold effect analysis of weekly frequency of moderate physical activity on current asthma status among individuals with a prior asthma diagnosis.

Outcome	OR(95%CI)	<i>p</i> value
One - line linear regression model	0.97 (0.94, 1.00)	0.033*
Two - piecewise linear regression model		
≤2 times/week	0.87 (0.79, 0.95)	0.003*
2-4 times/week	0.99 (0.85, 1.16)	0.922
>4 times/week	0.96 (0.81, 1.14)	0.630
Log - likelihood ratio test		<0.001*

Note: adjusted for age, gender, race, education level, PIR, smoking status, hypertension, diabetes, sedentary time, vigorous physical activities, and coronary heart disease.

**p* < 0.05.