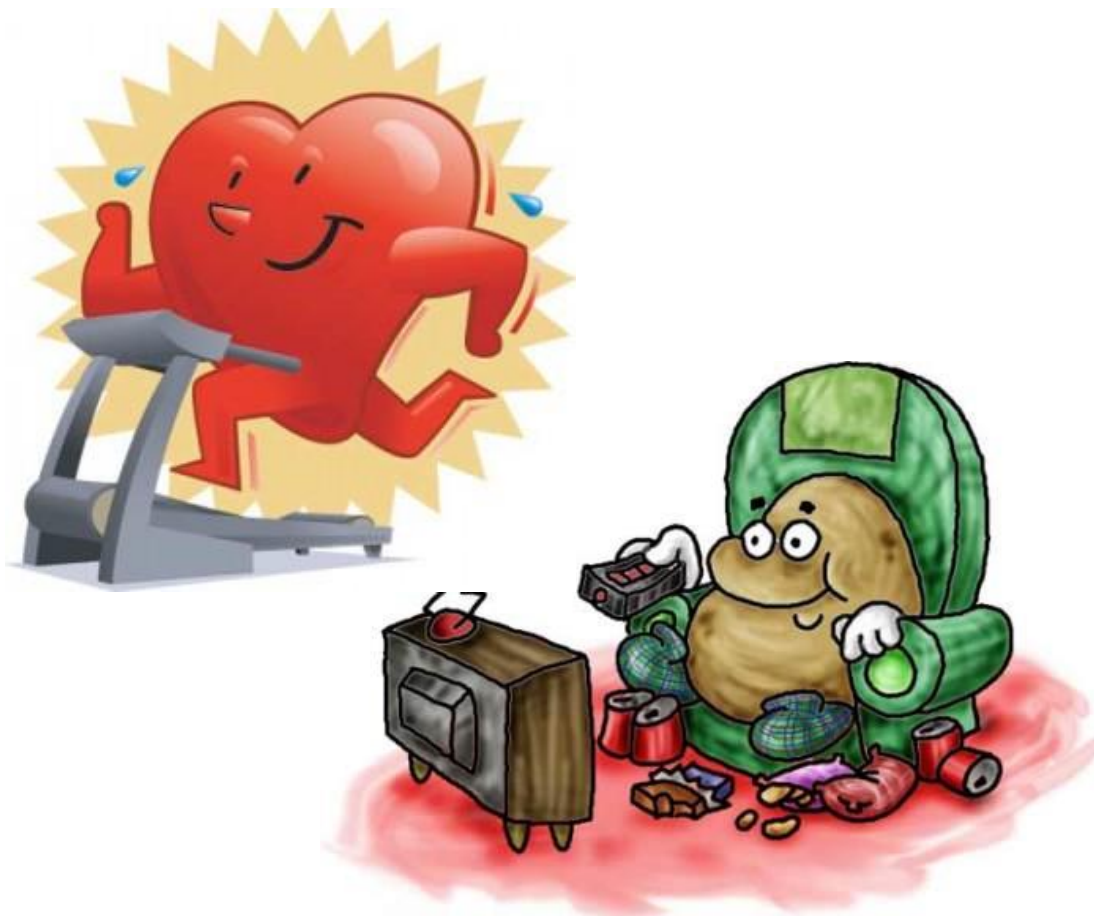


# Associations of mutually exclusive categories of physical activity and sedentary time with markers of cardiometabolic health in English adults: a cross-sectional analysis of the Health Survey for England

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## AIMS

To examine the associations of four mutually exclusive categories of objectively measured physical activity and sedentary time on markers of cardiometabolic health in a nationally representative sample of English adults.



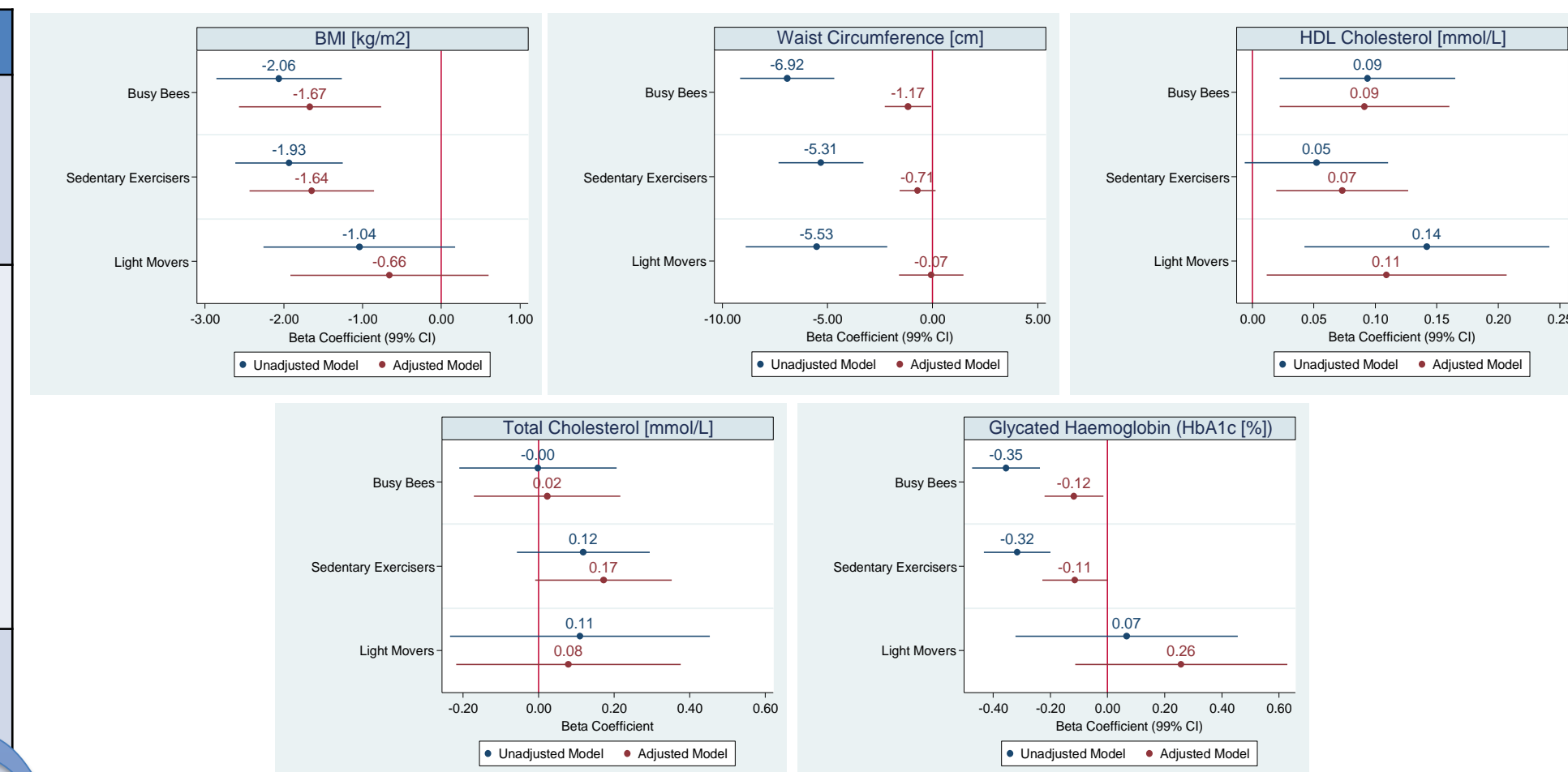
## METHODS

Using the 2008 Health Survey for England dataset, 2,131 participants aged  $\geq 18$  years who provided valid accelerometry data were included for analysis and grouped into one of four behavioural categories: (1) 'Busy Bees': physically active & low sedentary, (2) 'Sedentary Exercisers': physically active & high sedentary, (3) 'Light Movers': physically inactive & low sedentary, and (4) 'Couch Potatoes': physically inactive & high sedentary. 'Physically active' was defined as accumulating at least 150 minutes/week of moderate-to-vigorous physical activity. 'Low sedentary' was defined as residing in the lowest quartile of the ratio between the average sedentary time and the average light-intensity physical activity time. Multiple linear regression models, adjusting for measured confounders, investigated the differences in markers of health across the derived behavioural categories.

## RESULTS

In comparison to 'Couch Potatoes', 'Busy Bees' [body mass index: -1.67 kg/m<sup>2</sup> ( $p < 0.001$ ); waist circumference: -1.17 cm ( $p = 0.007$ ); glycated haemoglobin: -0.12% ( $p = 0.003$ ); HDL-cholesterol: 0.09 mmol/L ( $p = 0.001$ )], 'Sedentary Exercisers' [body mass index: -1.64 kg/m<sup>2</sup> ( $p < 0.001$ ); glycated haemoglobin: -0.11% ( $p = 0.009$ ); HDL-cholesterol: 0.07 mmol/L ( $p < 0.001$ )] and 'Light Movers' [HDL-cholesterol: 0.11 mmol/L ( $p = 0.004$ )] had more favourable health markers.

Most Desirable	← →		Least Desirable
'Busy Bees' (n = 385; 18.6%)	'Sedentary Exercisers' (n = 743; 36.7%)	'Light Movers' (n = 147; 6.8%)	'Couch Potatoes' (n = 856; 37.9%)
Physically Active & Low Sedentary	Physically Active & High Sedentary	Physically Inactive & Low Sedentary	Physically Inactive & High Sedentary



Weighted multiple linear regression models adjusting for measured confounders

Favourable levels (statistical significance established at  $p < 0.01$ ):

BMI Waist Circumference HDL-Cholesterol Glycated Haemoglobin	BMI HDL-Cholesterol Glycated Haemoglobin	HDL-Cholesterol	Reference
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## DISCUSSION

In this national sample of English adults, being physically active was associated with a better health profile, even in those with concomitant high sedentary time. Low sedentary time independent of physical activity had a positive association with HDL-cholesterol.

Findings are published in *BMC Public Health* as a Research Article:

**Bakrania K, Edwardson CL, Bodicoat DH, et al. (2016).** Associations of mutually exclusive categories of physical activity and sedentary time with markers of cardiometabolic health in English adults: a cross-sectional analysis of the Health Survey for England. *BMC Public Health*. 16(1): 25. DOI: 10.1186/s12889-016-2694-9. PMID: 26753523.

