UNIVERSITY OF BIRMINGHAM

Increased leisure-time physical activity associated with lower onset of diabetes in 44 828 adults with impaired fasting glucose

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Supplementary Table 14. Associations between volume of leisure-time physical activity and incident diabetes.

Coefficient between volume of leisure time physical activity (MET-hours/week) and incident type 2 diabetes)		
Model 1	Model 2	Model 3
-0.88 (-1.18 to -0.58) §	-0.66 (-1.04 to -0.28) ‡	-0.04 (-0.45 to 0.37)

Model 1: adjusted for age, sex;
Model 2: Model 1 + sex, marital status, education, physical labour at work, smoking, alcohol drinking, sleep duration, vegetable intake, systolic blood pressure, heart rate and total cholesterol;
Model 3: Model 2 + body mass index, waist circumference, fasting plasma glucose, triglycerides and white blood cell count.
‡$P < 0.01$; §$P < 0.001$.

Supplementary Table 2. Hazard ratios (95% CI) for incident diabetes by volume of leisure-time physical activity

	Volume of leisure-time physical activity				Trend *P*
	Inactive	Low	Moderate	High	
Model 1	1.00	0.90 (0.83-0.98) †	0.82 (0.74-0.90) §	0.74 (0.67-0.80) §	< 0.001
Model 2	1.00	0.89 (0.80-0.98) †	0.80 (0.71-0.90) §	0.75 (0.67-0.83) §	< 0.001
Model 3	1.00	0.96 (0.87-1.06)	0.93 (0.82-1.05)	0.89 (0.80-1.00)	0.034

Inactive (no LTPA or LTPA < 3.75 MET-hours/week; reference category), low (LTPA 3.75 to < 7.5 MET-hours/week), moderate (LTPA 7.5 to < 15.0 MET-hours/week) and high (LTPA ⩾ 15.0 MET-hours/week).
Model 1: adjusted for age, sex;
Model 2: Model 1 + marital status, education, physical labour at work, smoking, alcohol drinking, sleep duration, vegetable intake;
Model 3: Model 2 + body mass index, waist circumference, fasting plasma glucose, triglycerides and white blood cell count.
†*P* < 0.05; ‡*P* < 0.01; §*P* < 0.001.

Supplementary Table 13. Hazard ratios (95% CI) of for incident diabetes by volume of leisure-time physical activity with exclusion of incident diabetes identified within first 2 years.

	Volume of leisure-time physical activity				Trend P
	Inactive	Low	Moderate	High	
Case/Person-years	1780/103815	493/34424	364/21984	417/28841	
Model 1	1.00	0.88 (0.80-0.98) †	0.80 (0.72-0.90) §	0.72 (0.65-0.80) §	< 0.001
Model 2	1.00	0.87 (0.77-0.98) †	0.77 (0.67-0.90) ‡	0.72 (0.63-0.82) §	< 0.001
Model 3	1.00	0.94 (0.83-1.07)	0.89 (0.76-1.03)	0.86 (0.75-0.98)	0.013

Inactive (no LTPA or LTPA < 3.75 MET-hours/week; reference category), low (LTPA 3.75 to < 7.5 MET-hours/week), moderate (LTPA 7.5 to < 15.0 MET-hours/week) and high (LTPA $\geq$ 15.0 MET-hours/week).

Model 1: adjusted for age, sex;

Model 2: Model 1 + marital status, education, physical labour at work, smoking, alcohol drinking, sleep duration, vegetable intake, systolic blood pressure, heart rate and total cholesterol;

Model 3: Model 2 + body mass index, waist circumference, fasting plasma glucose, triglycerides and white blood cell count.

†$P < 0.05$; ‡$P < 0.01$; §$P < 0.001$.

Supplementary Table 24. Population attributable fractions (95% CI) ~~of~~ for incident diabetes by volume of leisure-time physical activity with exclusion of incident diabetes identified within first 2 years.

	Volume of leisure-time physical activity			
	Inactive	Inactive → Low	Inactive → Moderate	Inactive → High
No. participants	15439	5276	3303	4331
Case/Person-years	1780/103815	493/34424	364/21984	417/28841
Population attributable fraction (%)	----	10.56 (2.11-18.28)	18.62 (8.63-27.51)	15.36 (4.90-24.67)

Inactive (no LTPA or LTPA < 3.75 MET-hours/week; reference category), low (LTPA 3.75 to < 7.5 MET-hours/week), moderate (LTPA 7.5 to < 15.0 MET-hours/week) and high (LTPA ⩾ 15.0 MET-hours/week). Population attributable fractions (PAFs) were calculated from hazard ratios that were adjusted for age, sex, marital status, education, physical labour at work, smoking, alcohol drinking, sleep duration, vegetable intake, systolic blood pressure, heart rate and total cholesterol.

Supplementary Table 3̶5. Adjusted population attributable fractions (95% CI) o̶f̶ for incident diabetes by combinations of intensity and duration of leisure-time physical activity with exclusion of incident diabetes identified within first 2 years.

Intensity	Duration		
	Inactive → 0.5-2.4 hours/week	Inactive → 2.5 to 6.9 hours/week	Inactive → ≥ 7 hours/week
Inactive → Light (2.5 METs)	10.29 (-0.11-19.61)	13.24 (0.75-24.16)	17.05 (-7.02-35.70)
Inactive → Moderate (4.5 METs)	15.58 (-2.29-30.33)	19.41 (3.40-32.76)	50.6 (24.69-67.56)
Inactive → Vigorous (≥ 6.5 METs)	39.00 (19.65-53.68)	27.82 (11.26-41.29)	35.58 (7.75-55.01)

Inactive (no LTPA or LTPA < 3.75 MET-hours/week). Population attributable fractions (PAFs) were calculated from hazard ratios that were adjusted for age, sex, marital status, education, physical labour at work, smoking, alcohol drinking, sleep duration, vegetable intake, systolic blood pressure, heart rate and total cholesterol. The MET values for each intensity category were assigned by investigators according to the Ainsworth's compendium of physical activities [9].

Supplementary Figure 1. ~~Enrolment~~ Selection of the participants

MJ Health Database 1996-2014, aged 20-80 (n = 570,414)

Participants with fasting plasma glucose 5.6-6.9 mmol/L but no diabetes at baseline (n = 56,451)

Participants with only one visit or diabetes or fasting plasma glucose < 5.6 mmol/L at baseline (n = 513,963)

Participants with pre-existing physician-diagnosed cardiovascular and cerebrovascular disease (n = 6,905)

Participants missing physical activity information (n = 4,718)

Study population (n = 44,828)