

SUPPLEMENTARY DATA

**Supplementary Table 1.** All SABRE study participants (directly followed-up and without diabetes at baseline). Baseline characteristics

Mean±SD or geometric means (95%CI) unless otherwise stated	Europeans	Indian Asians	p †	African Caribbeans	p † †
<b>MEN</b> without baseline diabetes	1054	706		189	
Age	52.4±7.1	50.6±6.9	<0.001	53.4±6.0	0.057
Smoking, %never/ex/current	28/39/33%	28/39/33	<0.001	56/20/24%	<0.001
Years of education	10.7±2.6	12.5±3.7	<0.001	10.7±2.6	0.43
Manual occupation	635(40%)	532(76%)	<0.001	154(84%)	<0.001
Years lived in the UK	-	22.7±11.4		29.6±5.2	
Body mass index, kg/m <sup>2</sup>	25.9±3.7	25.5±3.3	0.029	26.2±3.2	0.23
Waist, cm	91.2±10.4	92.2±9.6	0.051	88.7±9.5	0.003
Thigh circumference, cm	56.7±4.4	55.3±4.1	<0.001	58.5±4.6	<0.001
Waist to hip ratio	0.94±0.06	0.98±0.06	<0.001	0.93±0.06	0.41
Waist to height ratio	0.52±0.06	0.54±0.06	<0.001	0.52±0.05	0.103
Truncal skinfold thickness, cm	3.6(3.5, 3.7)	4.5(4.4, 4.6)	<0.001	3.9(3.7, 4.2)	0.010
Systolic blood pressure, mm Hg	122±16	124±17	0.009	127±16	<0.001
Diastolic blood pressure, mm Hg	77±11	81±11	<0.001	82±12	<0.001
Fasting blood glucose, mmol/l	5.4(5.4, 5.4)	5.4(5.4, 5.5)	0.041	5.5(5.4, 5.6)	0.36
Fasting insulin, pmol/l	49.4(47.6, 51.2)	67.9(65.1, 70.9)	<0.001	52.0(47.4, 57.0)	0.29
2 hour post-challenge glucose, mmol/l	4.9(4.8, 4.9)	5.2(5.1, 5.3)	<0.001	5.6(5.3, 5.8)	<0.001
2 hour post-challenge insulin, pmol/l	54.6(46.5, 64.2)	68.6(56.0, 84.2)	<0.001	49.5(24.8, 98.8)	<0.001
HOMA 2 insulin resistance	0.82(0.79, 0.85)	1.11(1.07, 1.16)	<0.001	0.88(0.81, 0.96)	0.136
HOMA 2: estimate of % β cell function. median (25 <sup>th</sup> , 75 <sup>th</sup> centiles)	71.0(53.5, 91.4)	86.7(64.5, 113.5)	<0.001	74.6(56.2, 89.3)	0.49
Matsuda index of insulin resistance	0.21(0.20, 0.22)	0.36(0.34, 0.38)	<0.001	0.26(0.23, 0.28)	<0.001
HbA1c, %	5.5(5.5, 5.5)	5.7(5.7, 5.8)	<0.001	5.8(5.7, 5.9)	<0.001
Total cholesterol, mmol/l	6.0(5.9, 6.0)	5.9(5.8, 5.9)	0.015	5.5(5.4, 5.6)	<0.001
Triglycerides, mmol/l	1.5(1.4, 1.5)	1.7(1.7, 1.8)	<0.001	1.1(1.0, 1.2)	<0.001
HDL cholesterol, mmol/l	1.3(1.2, 1.3)	1.2(1.1, 1.2)	<0.001	1.4(1.4, 1.5)	<0.001
Family history of diabetes	148(21%)	222(43%)	<0.001	48(35%)	<0.001
Physical activity: leisure time (medians(25 <sup>th</sup> , 75 <sup>th</sup> centiles) MJ/week‡	4.0(1.5, 5.9)	3.5(1.0, 4.0)	<0.001	3.7(1.2, 4.1)	0.009
Physical activity at work, n(%) in most active group‡‡	244(28%)	204(36%)	<0.001	36(26%)	0.76
<b>WOMEN</b>	302	136		146	
Age	52.6±7.0	49.5±6.4	<0.001	52.2±6.3	0.62
Smoking, % never/ex/current	47/24/29%	97/1/2%	<0.001	81/8/12%	<0.001
Years of education	10.7±2.8	11.0±3.6	0.39	10.8±3.1	0.55
Manual occupation	144(49%)	83(68%)	<0.001	80(56%)	0.20
Years lived in the UK	-	20.7±5.1	-	29.8±6.2	-
Body mass index, kg/m <sup>2</sup>	25.8±4.7	27.0±4.3	0.006	29.5±5.3	<0.001
Waist, cm	79.3±11.9	83.9±10.3	<0.001	88.0±11.9	<0.001
Thigh circumference, cm	57.9±5.9	59.0±5.6	0.056	63.4±7.2	<0.001
Waist to hip ratio	0.80±0.08	0.85±0.08	<0.001	0.85±0.07	<0.001
Waist to height ratio	0.49±0.07	0.54±0.07	<0.001	0.55±0.08	<0.001
Truncal skinfold thickness, cm	3.6(3.4, 3.8)	6.5(6.2, 6.8)	<0.001	4.9(4.6, 5.3)	<0.001
Systolic blood pressure, mm Hg	119±17	123±22	0.040	129±16	<0.001
Diastolic blood pressure, mm Hg	74±10	76.6±11	0.018	81±12	<0.001

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Mean±SD or geometric means (95%CI) unless otherwise stated	Europeans	Indian Asians	p †	African Caribbeans	p † †
Fasting blood glucose, mmol/l	5.3(5.3, 5.3)	5.0(4.9, 5.10)	0.018	5.4(5.3, 5.5)	<0.001
Fasting insulin, pmol/l	52.0(33.7, 38.8)	48.2(44.5, 52.2)	<0.001	63.7(58.3, 70.0)	<0.001
2 hour post-challenge glucose, mmol/l	5.6(5.5, 5.8)	5.5(5.3, 5.7)	0.49	6.3(6.1, 6.6)	<0.001
2 hour post-challenge insulin, pmol/l	52.8(21.0, 133.0)	58.8(33.9, 101.9)	<0.001	44.3(29.8, 65.9)	<0.001
HOMA 2 insulin resistance	0.60(0.56, 0.65)	0.78(0.72, 0.84)	<0.001	1.05(0.96, 1.14)	<0.001
HOMA 2: estimate of % β cell function. Median (25 <sup>th</sup> , 75 <sup>th</sup> centiles)	60.0(47.6, 75.3)	77.7(65.5, 102.7)	<0.001	83.6(61.8, 108.0)	<0.001
Matsuda index of insulin resistance	0.20(0.19, 0.22)	0.30(0.27, 0.34)	<0.001	0.37(0.33, 0.40)	<0.001
HbA1 <sub>c</sub> , %	5.5(5.5, 5.6)	5.7(5.6, 5.7)	<0.001	5.8(5.4, 6.2)	0.029
Total cholesterol, mmol/l	6.0(5.9, 6.1)	5.6(5.5, 5.8)	<0.001	5.5(5.3, 5.6)	<0.001
Triglycerides, mmol/l	1.3(1.2, 1.3)	1.3(1.3, 1.4)	0.21	1.0(1.0, 1.1)	<0.001
HDL cholesterol, mmol/l	1.6(1.6, 1.6)	1.4(1.4, 1.4)	<0.001	1.6(1.6, 1.7)	0.156
Family history of diabetes	62(28%)	43(40%)	0.032	65(53%)	<0.001
Physical activity: leisure time (medians(25 <sup>th</sup> , 75 <sup>th</sup> centiles) MJ/week‡	3.7(1.2, 5.0)	1.0(1.0, 3.5)	<0.001	3.7(1.2, 4.1)	0.78
Physical activity at work, n(%) in most active group‡‡	50(24%)	31(42%)	0.005	38(39%)	0.009

Summary of energy expenditure estimation (based on participant questionnaire following this section):

1. Working activity group was estimated from Q5.1; we used q5.1a, 5.1c and 5.1d to compile an index of working activity calculated as follows: (3- q5.1a + Q5.1c+Q5.1d)

This gives scores between 1 and 12, and was categorised as follows:

Not in employment= 0

1-4=1(least vigorous)

5-7=2

8-12=3(most vigorous)

2. Leisure time activity energy expenditure was estimated by summing the following components:

a. Walking was assumed to be at moderate pace (3 miles/hour) pace with energy expenditure 1 MJ/hour

b. Cycling was assumed to be at 5 miles/hour with energy expenditure 1.26 MJ/hour

c. Sporting activities were classified as low (0.76 MJ/hour), medium(1.26 MJ/hour) and high intensity (1.76 MJ/hour) according to the methods used in the Allied Dunbar Fitness survey. Total sporting energy expenditure was estimated using frequency and duration of activity and proportion of year in which the sport was played

Other strenuous activity was assumed to expend 1.76 MJ/hour

**SECTION 5. EXERCISE**

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**5.1 Which of the answers below best describe your activity at work?**

**Please tick one of the boxes in answer to each question.**

- |                             | Never                       | Seldom                      | Sometimes                   | Often                       | Always                      |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| (a) Do you sit              | 1. <input type="checkbox"/> | 2. <input type="checkbox"/> | 3. <input type="checkbox"/> | 4. <input type="checkbox"/> | 5. <input type="checkbox"/> |
| (b) Do you stand            | 1. <input type="checkbox"/> | 2. <input type="checkbox"/> | 3. <input type="checkbox"/> | 4. <input type="checkbox"/> | 5. <input type="checkbox"/> |
| (c) Do you walk             | 1. <input type="checkbox"/> | 2. <input type="checkbox"/> | 3. <input type="checkbox"/> | 4. <input type="checkbox"/> | 5. <input type="checkbox"/> |
| (d) Do you lift heavy loads | 1. <input type="checkbox"/> | 2. <input type="checkbox"/> | 3. <input type="checkbox"/> | 4. <input type="checkbox"/> | 5. <input type="checkbox"/> |

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**5.2 While travelling to and from work, or in your spare time:**

**(a) How many miles do you walk on an average weekday?**

- 1.  Less than 1 mile
- 2.  1 to 3 miles
- 3.  4 miles or more

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**(b) How many miles do you walk in an average weekend?**

- 1.  Less than 1 mile
- 2.  1 to 3 miles
- 3.  4 miles or more

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**5.3 (a) Do you ride a bicycle regularly?**

- 1.  Yes
- 2.  No **If No, go to Question 5.4**

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If Yes,

(b) How many miles do you cycle on an average weekday?

- 1.  Less than 2 miles
- 2.  2 to 6 miles
- 3.  7 miles or more

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(c) How many miles do you cycle in an average weekend?

- 1.  Less than 2 miles
- 2.  2 to 6 miles
- 3.  7 miles or more

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5.4 (a) Do you play any sport (or other recreational exercise such as swimming or dancing)?

- 1.  Yes
- 2.  No

If No, go to Question 5.6

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If Yes,

(b) Which sport do you play most frequently?

- |   |  |
|---|--|
| 01. <input type="checkbox"/> Bowling            | 07. <input type="checkbox"/> Dancing (disco/aerobic) |
| 02. <input type="checkbox"/> Football or rugby  | 08. <input type="checkbox"/> Cricket                 |
| 03. <input type="checkbox"/> Golf               | 09. <input type="checkbox"/> Badminton               |
| 04. <input type="checkbox"/> Swimming           | 10. <input type="checkbox"/> Tennis                  |
| 05. <input type="checkbox"/> Jogging            | 11. <input type="checkbox"/> Squash                  |
| 06. <input type="checkbox"/> Dancing (ballroom) | 12. <input type="checkbox"/> Weight training         |

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Other sport - please specify: \_\_\_\_\_

(c) How many hours a week do you play it?

- 1.  Less than 1 hour/week
- 2.  1 to 2 hours/week
- 3.  3-4 hours/week
- 4.  5 hours/week or more

(20)

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(d) How many months a year?

- 1.  Less than 1 month in a year
- 2.  1 to 3 months/year
- 3.  4 to 6 months/year
- 4.  More than 6 months of the year

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5.5 (a) Do you play a second sport?

- 1.  Yes
- 2.  No If No, go to Question 5.6

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If Yes,

(b) Which sport is it?

- |   |  |
|---|--|
| 01. <input type="checkbox"/> Bowling            | 07. <input type="checkbox"/> Dancing (disco/aerobic) |
| 02. <input type="checkbox"/> Football or rugby  | 08. <input type="checkbox"/> Cricket                 |
| 03. <input type="checkbox"/> Golf               | 09. <input type="checkbox"/> Badminton               |
| 04. <input type="checkbox"/> Swimming           | 10. <input type="checkbox"/> Tennis                  |
| 05. <input type="checkbox"/> Jogging            | 11. <input type="checkbox"/> Squash                  |
| 06. <input type="checkbox"/> Dancing (ballroom) | 12. <input type="checkbox"/> Weight training         |

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Other sport - please specify: \_\_\_\_\_

(c) How many hours a week do you play it?

- 1.  Less than 1 hour/week
- 2.  1 to 2 hours/week
- 3.  3-4 hours/week
- 4.  5 hours/week or more

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(d) How many months a year?

- 1.  Less than 1 month in a year
- 2.  1 to 3 months/year
- 3.  4 to 6 months/year
- 4.  More than 6 months of the year

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5.6 For how many hours in an average week do you watch television or video?

- 1.  Less than 1 hour a week
- 2.  1-3 hours a week
- 3.  4-8 hours a week
- 4.  9-15 hours a week
- 5.  16 hours a week or more

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5.7 Either at work or in leisure time:

(a) At least once a week do you engage in any regular activity similar to brisk walking, jogging, cycling, etc long enough to work up a sweat?

- 1.  Yes
- 2.  No

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If Yes:

(b) How many times per week?

Enter number of times:

5.8 (a) Is your activity limited by any disability?

- 1.  Yes
- 2.  No

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If Yes,

(b) Which of these most limits your activity?

- 1.  Old injury
- 2.  Arthritis
- 3.  Back pain
- 4.  Foot problems such as bunions or corns
- 5.  Chest trouble such as asthma or bronchitis
- 6.  Heart trouble
- 7.  Other disability -

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Please specify: \_\_\_\_\_