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Table S1 Repeated measures of physical activity in men who completed the repeat assessment visit in UK Biobank 5 years after recruitment

	Physical activity (excess MET-hours per week) ^a								
	<5	5-9.9	10-14.9	15-24.9	25-34.9	35-49.9	50-74.9	75-99.9	≥ 100
	<i>All men (n = 119,230)</i>								
Number of men	12,613	13,792	12,381	20,983	15,023	14,635	13,415	7,043	9,345
Baseline ^b	2.5	7.5	12.4	19.7	29.7	41.9	61.1	85.9	143.8
	<i>Men who completed the repeat assessment visit (n = 5,158)</i>								
Number of men	602	614	534	943	691	631	541	279	323
Baseline ^b	2.6	7.6	12.4	19.7	29.8	42.1	60.5	85.6	133.3
Repeat ^b	12.2	16.3	20.8	26.1	32.2	40.3	47.9	60.5	82.8

^aCategories are defined from baseline data

^bValues are mean excess MET-hours per week

Table S2 Repeated measures of physical activity in women who completed the repeat assessment visit in UK Biobank 5 years after recruitment

	Physical activity (excess MET-hours per week) ^a								
	<5	5-9.9	10-14.9	15-24.9	25-34.9	35-49.9	50-74.9	75-99.9	≥ 100
	<i>All women (n = 140,578)</i>								
Number of women	14,299	17,632	15,970	26,156	18,555	17,490	16,231	7,407	6,838
Baseline ^b	2.6	7.5	12.4	19.6	29.6	41.7	60.9	85.8	132.5
	<i>Women who completed the repeat assessment visit (n = 5,067)</i>								
Number of women	515	659	606	1,004	681	640	555	229	178
Baseline ^b	2.6	7.6	12.3	19.6	29.7	41.7	61.0	85.0	133.0
Repeat ^b	11.9	18.5	21.3	26.1	33.2	40.6	52.8	59.2	80.7

^aCategories are defined from baseline data

^bValues are mean excess MET-hours per week

Table S3 Mean (95% CI) body fat percentage by categories of BMI and physical activity in men in UK Biobank.

Categories of BMI	Categories of physical activity (MET-hours/wk)								
	<5	5-9.9	10-14.9	15-24.9	25-34.9	35-49.9	50-74.9	75-99.9	≥ 100
20-	16.6 (16.3-16.8) <i>n</i> = 649	16.1 (15.9-16.4) <i>n</i> = 780	15.7 (15.4-15.9) <i>n</i> = 743	15.4 (15.3-15.6) <i>n</i> = 1356	14.9 (14.7-15.1) <i>n</i> = 1014	15.0 (14.7-15.2) <i>n</i> = 986	15.0 (14.8-15.2) <i>n</i> = 940	14.1 (13.8-14.4) <i>n</i> = 478	14.3 (14.0-14.6) <i>n</i> = 658
<i>Mean BMI</i>	21.6	21.5	21.5	21.5	21.5	21.5	21.6	21.5	21.5
22.5-	19.9 (19.8-20.1) <i>n</i> = 1943	19.7 (19.6-19.8) <i>n</i> = 2477	19.2 (19.0-19.3) <i>n</i> = 2411	19.1 (19.0-19.2) <i>n</i> = 4289	18.6 (18.5-18.7) <i>n</i> = 3379	18.6 (18.4-18.7) <i>n</i> = 3247	18.4 (18.3-18.6) <i>n</i> = 2851	17.9 (17.7-18.1) <i>n</i> = 1490	17.9 (17.8-18.1) <i>n</i> = 1909
<i>Mean BMI</i>	23.9	23.9	23.9	23.9	23.9	23.9	23.8	23.9	23.8
25-	23.0 (22.9-23.1) <i>n</i> = 3217	22.7 (22.6-22.8) <i>n</i> = 3861	22.4 (22.3-22.5) <i>n</i> = 3606	22.2 (22.1-22.3) <i>n</i> = 6180	21.9 (21.8-22.0) <i>n</i> = 4428	21.7 (21.6-21.8) <i>n</i> = 4419	21.6 (21.5-21.7) <i>n</i> = 3960	21.3 (21.1-21.4) <i>n</i> = 2095	21.2 (21.1-21.3) <i>n</i> = 2694
<i>Mean BMI</i>	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2
27.5-	25.7 (25.6-25.8) <i>n</i> = 2950	25.4 (25.3-25.5) <i>n</i> = 3192	25.2 (25.1-25.3) <i>n</i> = 2793	25.0 (24.9-25.1) <i>n</i> = 4818	24.7 (24.6-24.9) <i>n</i> = 3302	24.6 (24.4-24.7) <i>n</i> = 3199	24.5 (24.3-24.6) <i>n</i> = 2948	24.4 (24.2-24.6) <i>n</i> = 1561	24.2 (24.0-24.3) <i>n</i> = 2145
<i>Mean BMI</i>	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
30-	28.1 (27.9-28.2) <i>n</i> = 1867	27.8 (27.7-28.0) <i>n</i> = 1780	27.8 (27.7-28.0) <i>n</i> = 1498	27.6 (27.4-27.7) <i>n</i> = 2409	27.3 (27.2-27.5) <i>n</i> = 1644	27.2 (27.1-27.4) <i>n</i> = 1585	27.1 (26.9-27.2) <i>n</i> = 1560	26.9 (26.7-27.1) <i>n</i> = 809	26.7 (26.5-26.9) <i>n</i> = 1107
<i>Mean BMI</i>	31.1	31.1	31.1	31.0	31.0	31.0	31.0	31.0	31.0
32.5-	30.4 (30.2-30.6) <i>n</i> = 984	30.2 (30.0-30.4) <i>n</i> = 873	30.0 (29.7-30.2) <i>n</i> = 663	29.9 (29.7-30.1) <i>n</i> = 1009	29.5 (29.3-29.8) <i>n</i> = 654	29.5 (29.2-29.7) <i>n</i> = 634	29.3 (29.1-29.6) <i>n</i> = 614	29.2 (28.8-29.6) <i>n</i> = 335	29.5 (29.2-29.8) <i>n</i> = 440
<i>Mean BMI</i>	33.6	33.6	33.5	33.5	33.4	33.5	33.5	33.5	33.5

35-	32.5 (32.2-32.9) <i>n</i> = 428	32.1 (31.8-32.5) <i>n</i> = 358	32.0 (31.6-32.4) <i>n</i> = 302	32.0 (31.7-32.3) <i>n</i> = 416	32.2 (31.8-32.5) <i>n</i> = 280	31.8 (31.4-32.2) <i>n</i> = 261	31.7 (31.3-32.1) <i>n</i> = 247	-	-
<i>Mean BMI</i>	36.1	36.0	36.0	36.0	36.0	36.0	36.0		
37.5-	34.3 (33.9-34.8) <i>n</i> = 217	-	-	-	-	-	-	-	-
<i>Mean BMI</i>	38.5								

Adjusted for age (5 year categories)

Values not shown for cells with less than 200 participants

Table S4 Mean (95% CI) body fat percentage by categories of BMI and physical activity in women in UK Biobank

Categories of BMI	Categories of physical activity (MET-hours/wk)								
	<5	5-9.9	10-14.9	15-24.9	25-34.9	35-49.9	50-74.9	75-99.9	≥ 100
18.5-	24.4 (24.0-24.8) <i>n</i> = 313	23.5 (23.2-23.9) <i>n</i> = 460	23.5 (23.2-23.8) <i>n</i> = 405	23.1 (22.9-23.4) <i>n</i> = 749	22.7 (22.4-23.0) <i>n</i> = 569	22.5 (22.2-22.7) <i>n</i> = 556	22.3 (22.0-22.6) <i>n</i> = 526	22.3 (21.9-22.8) <i>n</i> = 219	22.3 (21.9-22.7) <i>n</i> = 267
<i>Mean BMI</i>	19.4	19.3	19.4	19.4	19.4	19.4	19.4	19.3	19.4
20-	28.4 (28.2-28.6) <i>n</i> = 1657	28.0 (27.9-28.2) <i>n</i> = 2333	27.8 (27.6-27.9) <i>n</i> = 2378	27.5 (27.4-27.6) <i>n</i> = 4095	27.2 (27.1-27.3) <i>n</i> = 3115	26.8 (26.7-27.0) <i>n</i> = 3034	26.7 (26.5-26.8) <i>n</i> = 2746	26.6 (26.4-26.8) <i>n</i> = 1327	26.2 (26.0-26.4) <i>n</i> = 1156
<i>Mean BMI</i>	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
22.5-	32.6 (32.4-32.7) <i>n</i> = 2872	32.2 (32.1-32.3) <i>n</i> = 4068	32.0 (31.9-32.1) <i>n</i> = 4014	31.8 (31.7-31.9) <i>n</i> = 6819	31.4 (31.3-31.5) <i>n</i> = 4981	31.4 (31.3-31.5) <i>n</i> = 4820	31.2 (31.1-31.3) <i>n</i> = 4496	31.0 (30.8-31.2) <i>n</i> = 2026	30.7 (30.6-30.9) <i>n</i> = 1998
<i>Mean BMI</i>	23.8	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
25-	36.0 (35.9-36.2) <i>n</i> = 2953	35.7 (35.6-35.8) <i>n</i> = 4016	35.4 (35.3-35.6) <i>n</i> = 3594	35.4 (35.3-35.5) <i>n</i> = 6034	35.2 (35.1-35.3) <i>n</i> = 4288	35.1 (35.0-35.2) <i>n</i> = 4069	34.9 (34.8-35.0) <i>n</i> = 3705	34.8 (34.6-35.0) <i>n</i> = 1692	34.8 (34.6-35.0) <i>n</i> = 1516
<i>Mean BMI</i>	26.2	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1
27.5-	39.0 (38.9-39.2) <i>n</i> = 2353	38.8 (38.6-38.9) <i>n</i> = 2715	38.5 (38.4-38.7) <i>n</i> = 2370	38.3 (38.2-38.5) <i>n</i> = 3704	38.3 (38.2-38.4) <i>n</i> = 2616	38.2 (38.1-38.4) <i>n</i> = 2366	38.1 (37.9-38.2) <i>n</i> = 2262	38.0 (37.8-38.2) <i>n</i> = 1008	37.7 (37.5-37.9) <i>n</i> = 879
<i>Mean BMI</i>	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
30-	41.5 (41.3-41.7) <i>n</i> = 1625	41.1 (40.9-41.3) <i>n</i> = 1716	41.1 (40.9-41.3) <i>n</i> = 1424	41.0 (40.9-41.2) <i>n</i> = 2185	40.8 (40.6-41.0) <i>n</i> = 1366	40.6 (40.4-40.8) <i>n</i> = 1237	40.8 (40.6-41.0) <i>n</i> = 1181	40.4 (40.1-40.7) <i>n</i> = 564	40.3 (40.0-40.6) <i>n</i> = 468
<i>Mean BMI</i>	31.1	31.1	31.1	31.1	31.1	31.0	31.1	31.0	31.1
32.5-	43.6	43.4	43.2	43.1	43.2	43.0	42.7	42.7	42.5

	(43.4-43.8) <i>n</i> = 1008	(43.2-43.6) <i>n</i> = 989	(43.0-43.5) <i>n</i> = 774	(42.9-43.3) <i>n</i> = 1149	(43.0-43.5) <i>n</i> = 699	(42.8-43.3) <i>n</i> = 651	(42.4-43.0) <i>n</i> = 611	(42.3-43.1) <i>n</i> = 260	(42.0-42.9) <i>n</i> = 233
<i>Mean BMI</i>	33.6	33.6	33.6	33.6	33.6	33.5	33.5	33.5	33.5
35-	45.3 (45.0-45.5) <i>n</i> = 577	45.2 (45.0-45.5) <i>n</i> = 577	44.9 (44.6-45.3) <i>n</i> = 444	45.0 (44.7-45.3) <i>n</i> = 584	44.9 (44.6-45.3) <i>n</i> = 359	44.9 (44.5-45.3) <i>n</i> = 313	44.8 (44.4-45.2) <i>n</i> = 282	-	-
<i>Mean BMI</i>	36.1	36.1	36.0	36.1	36.1	36.1	36.0		
37.5-	47.0 (46.6-47.3) <i>n</i> = 368	46.6 (46.2-47.0) <i>n</i> = 303	46.8 (46.3-47.2) <i>n</i> = 207	46.7 (46.3-47.1) <i>n</i> = 316	46.6 (46.1-47.0) <i>n</i> = 205	-	-	-	-
<i>Mean BMI</i>	38.6	38.5	38.6	38.5	38.5				
40-	48.3 (47.8-48.7) <i>n</i> = 220	-	-	-	-	-	-	-	-
<i>Mean BMI</i>	41.1								

Adjusted for age (5 year categories)

Values not shown for cells with less than 200 participants

Table S5 BMI and body fat percentage by sex and 5-year age category in UK Biobank

	<i>n</i>	BMI	Body fat percentage
Men			
< 45 years	15176	27.2 (4.0)	22.8 (5.5)
45-49 years	17569	27.4 (3.9)	23.5 (5.5)
50-54 years	18375	27.5 (3.9)	24.1 (5.5)
55-59 years	20580	27.3 (3.8)	24.6 (5.5)
60-64 years	26532	27.3 (3.7)	25.1 (5.4)
≥ 65 years	20671	27.1 (3.6)	25.6 (5.3)
Women			
< 45 years	17392	25.7 (4.8)	33.7 (7.0)
45-49 years	21848	26.0 (4.8)	34.3 (7.0)
50-54 years	23728	26.3 (4.7)	35.3 (6.7)
55-59 years	25329	26.3 (4.6)	35.9 (6.5)
60-64 years	31600	26.5 (4.4)	36.4 (6.3)
≥ 65 years	20343	26.5 (4.2)	36.7 (6.0)

Values are mean (SD)

Numbers of participants shown are for BMI within each age category, slightly fewer participants have information on body fat percentage

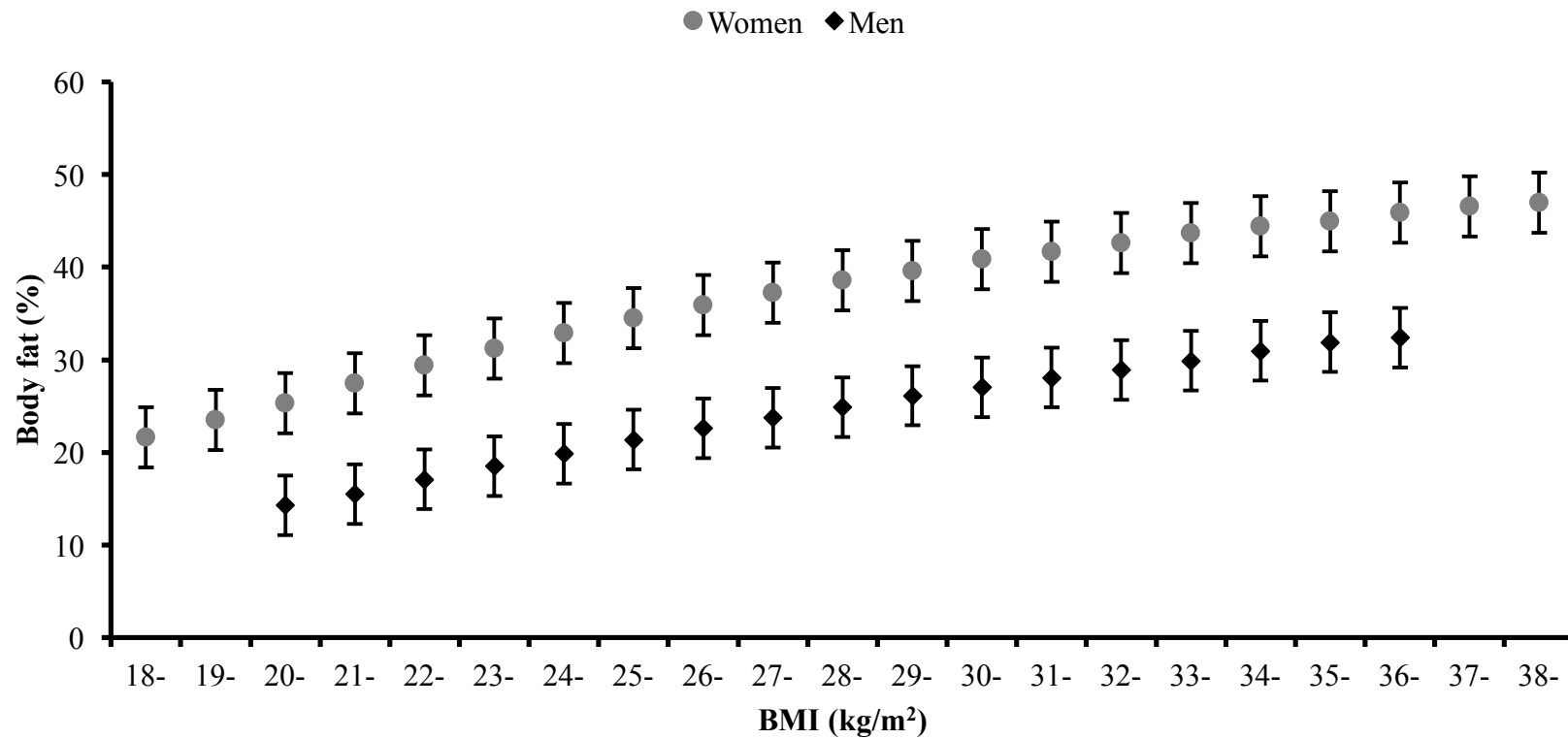


Figure S1 Body fat percentage by BMI for participants aged younger than 50 years in UK Biobank
Values are mean body fat percentage by single-unit BMI categories
Error bars represent 1 SD either side of the mean
Estimates shown for cells with 200 or more participants

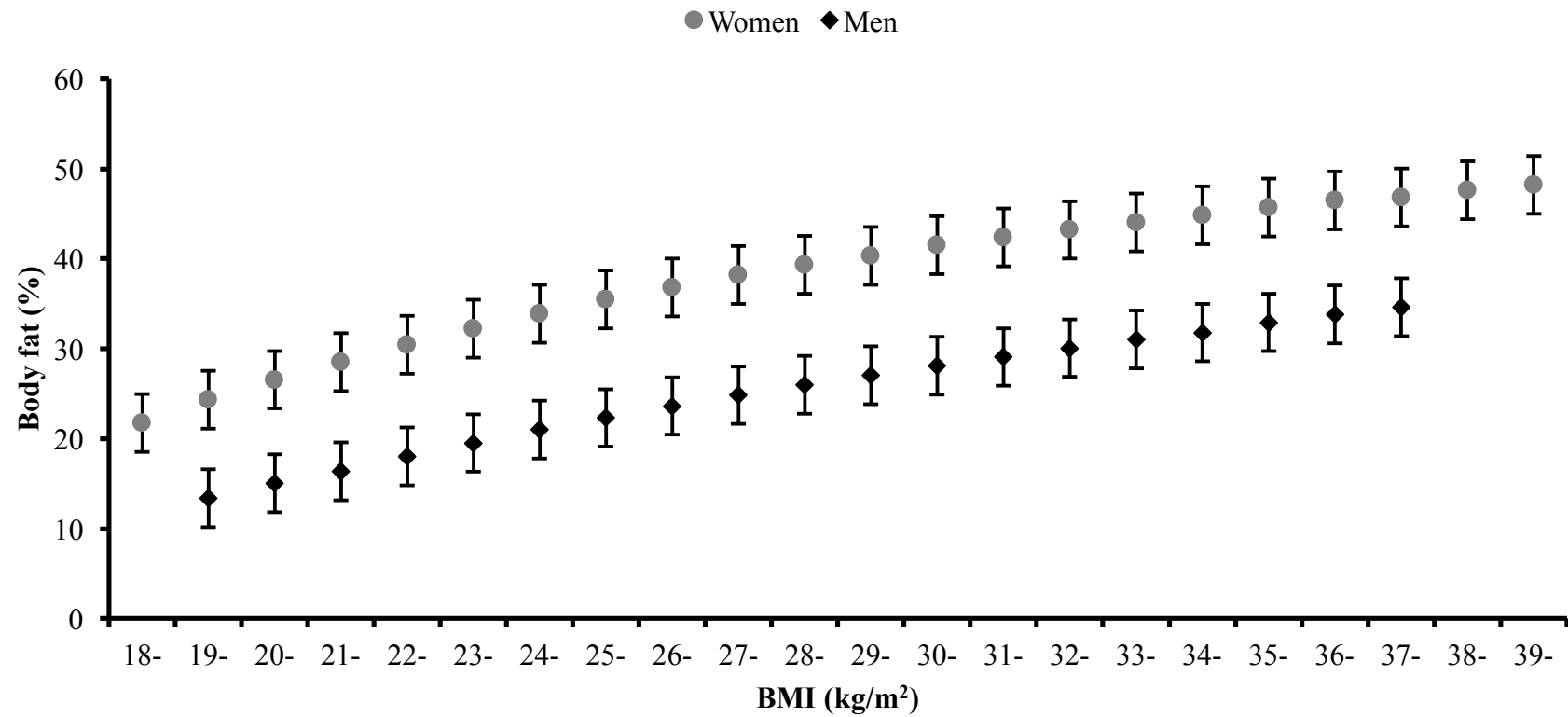


Figure S2 Body fat percentage by BMI for participants aged 50-59 years in UK Biobank
 Values are mean body fat percentage by single-unit BMI categories
 Error bars represent 1 SD either side of the mean
 Estimates shown for cells with 200 or more participants

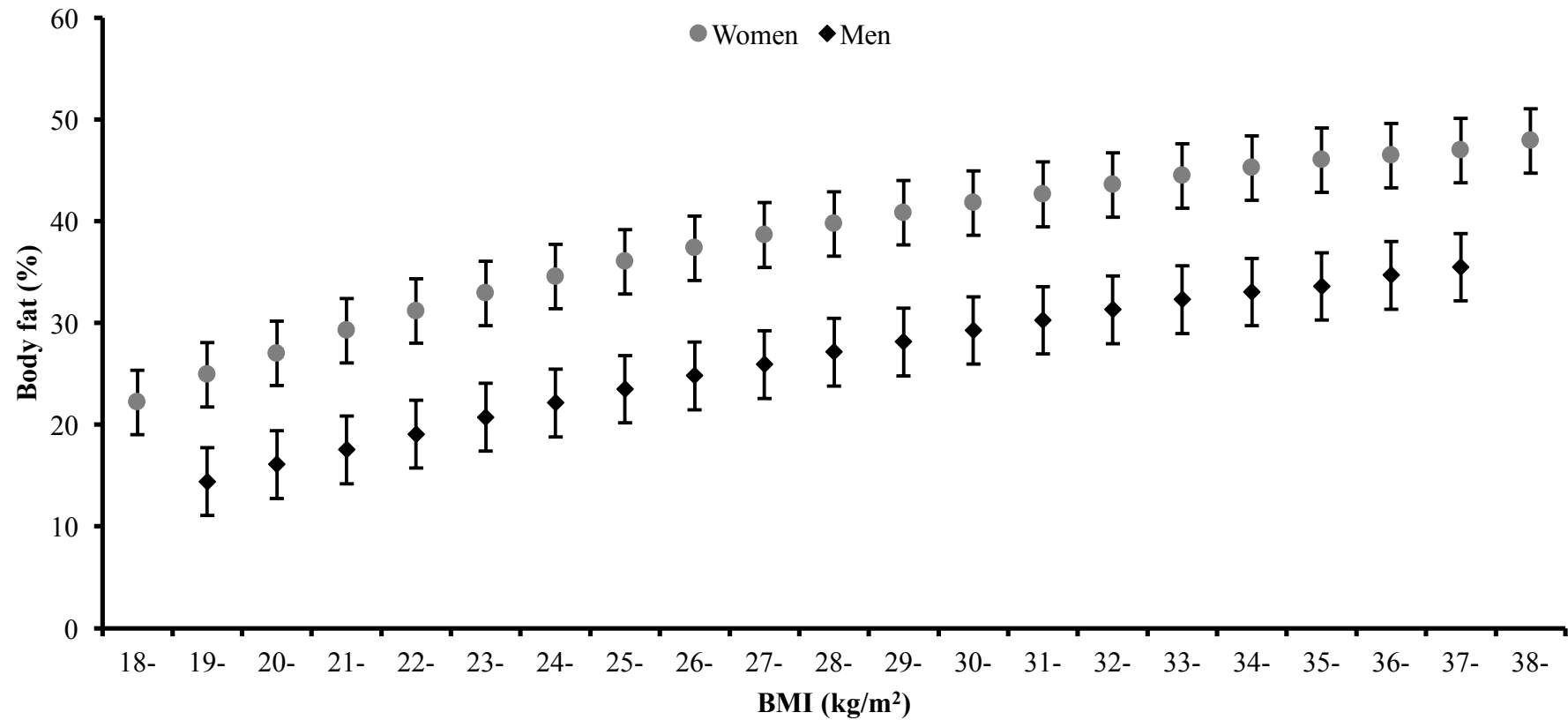


Figure S3 Body fat percentage by BMI for participants aged 60 years or older in UK Biobank
 Values are mean body fat percentage by single-unit BMI categories
 Error bars represent 1 SD either side of the mean
 Estimates shown for cells with 200 or more participants

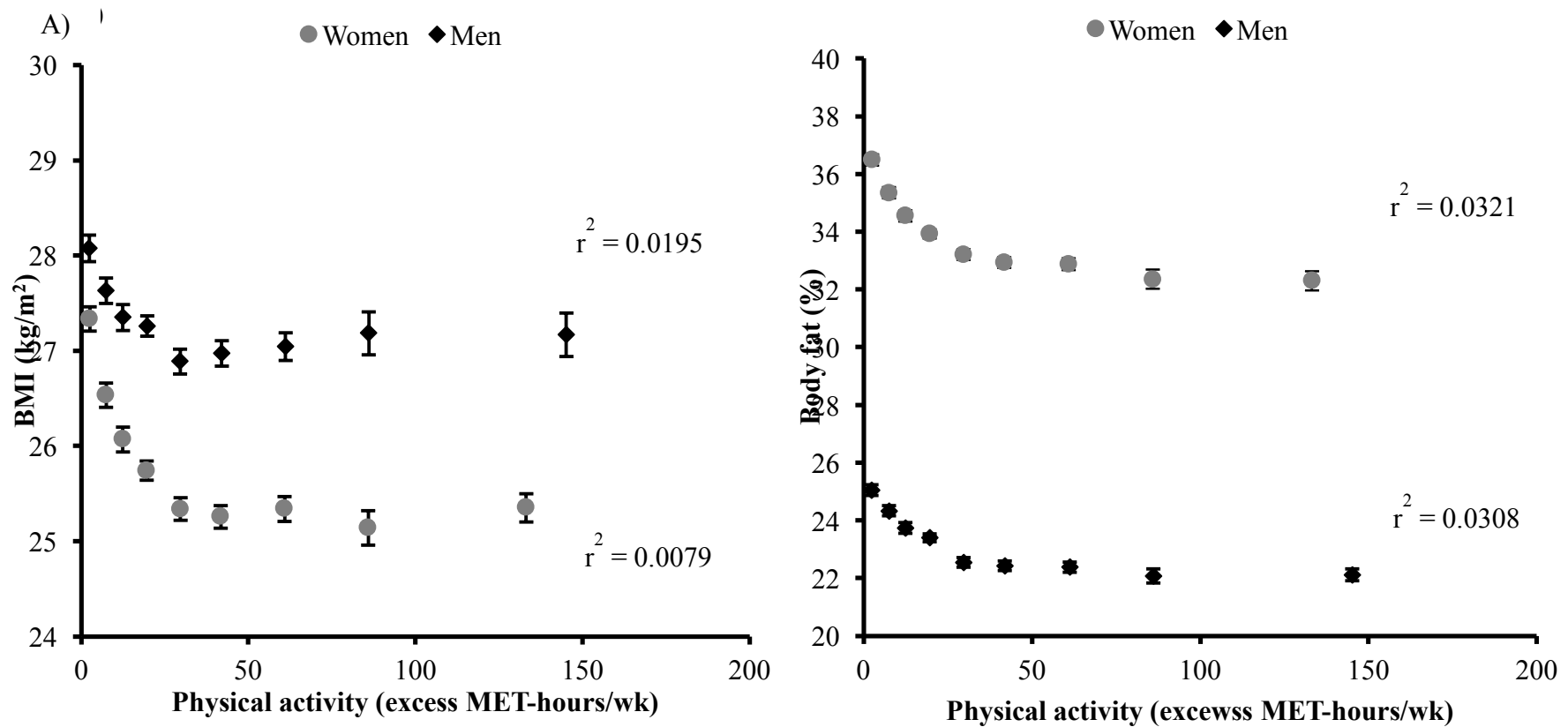


Figure S4 Mean BMI and body fat percentage by physical activity for participants aged younger than 50 years in UK Biobank
 Panel A: Mean BMI by physical activity (excess MET-hours/wk); Panel B: Mean body fat percentage by physical activity (excess MET-hrs/wk)
 Values are mean BMI and body fat percentage in the following categories of physical activity: <5, 5-9.9, 10-14.9, 15-24.9, 25-34.9, 35-49.9, 50-74.9, 75-99.9, ≥ 100 excess MET-hrs per week, and are plotted at the value of the mean excess MET-hours/wk in each category
 Errors bars are 95% CI
 Estimates shown for cells with 200 or more participants

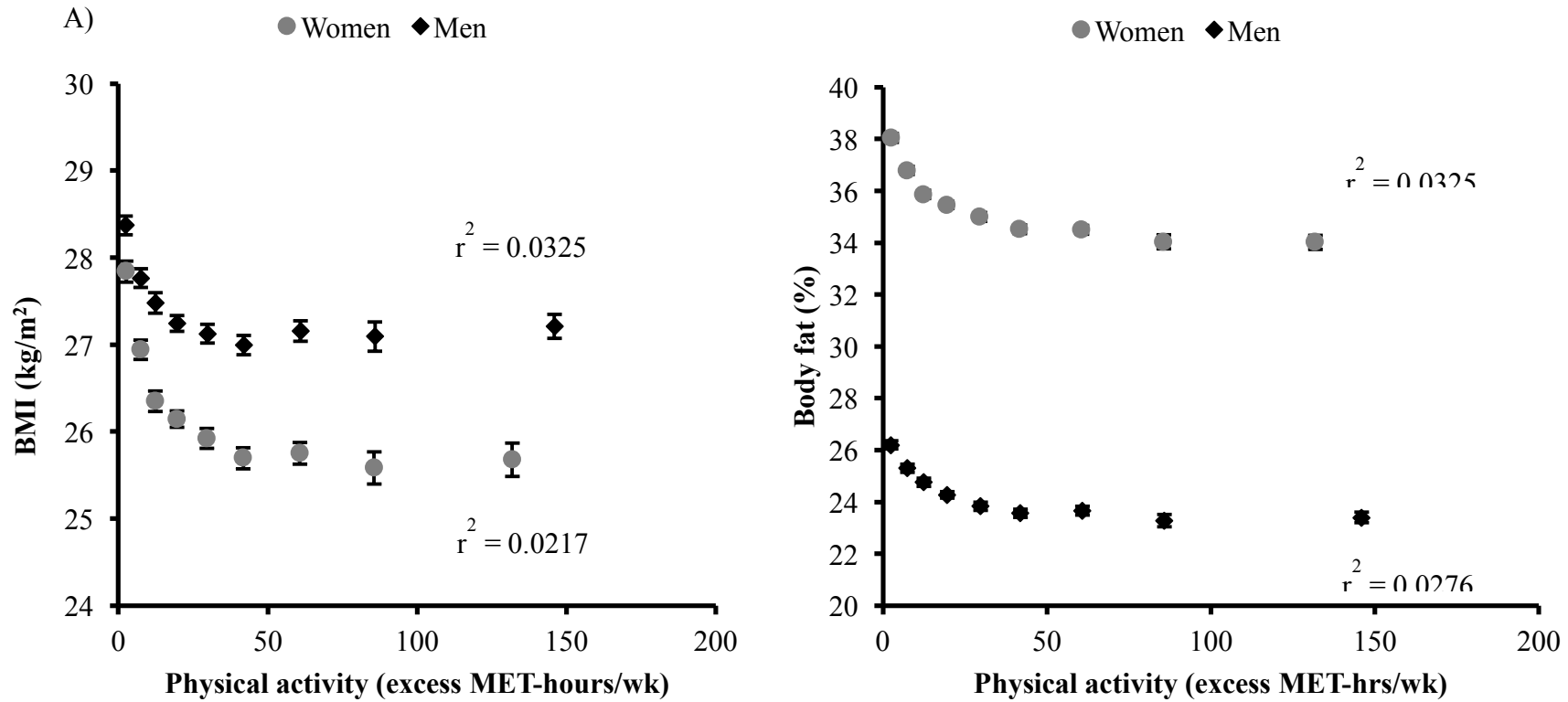


Figure S5 Mean BMI and body fat percentage by physical activity in participants aged 50-59 years in UK Biobank

Panel A: Mean BMI by physical activity (excess MET-hours/wk); Panel B: Mean body fat percentage by physical activity (excess MET-hrs/wk)

Values are mean BMI and body fat percentage in the following categories of physical activity: <5, 5-9.9, 10-14.9, 15-24.9, 25-34.9, 35-49.9, 50-74.9, 75-99.9, ≥ 100 excess MET-hrs per week, and are plotted at the value of the mean excess MET-hours/wk in each category

Errors bars are 95% CI

Estimates shown for cells with 200 or more participants

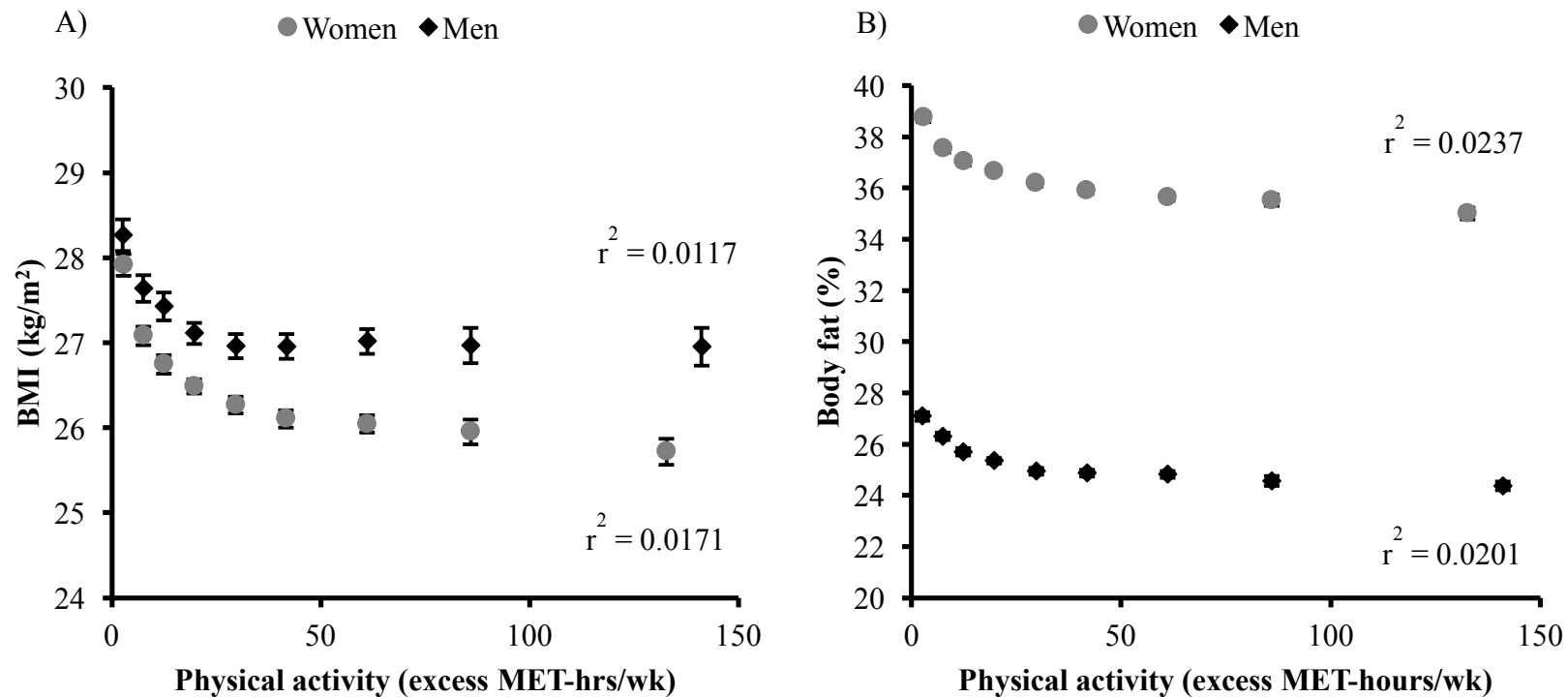


Figure S6 Mean BMI and body fat percentage by physical activity in participants aged 60 years or older in UK Biobank

Panel A: Mean BMI by physical activity (excess MET-hours/wk); Panel B: Mean body fat percentage by physical activity (excess MET-hrs/wk)

Values are mean BMI and body fat percentage in the following categories of physical activity: <5, 5-9.9, 10-14.9, 15-24.9, 25-34.9, 35-49.9, 50-74.9, 75-99.9, ≥ 100 excess MET-hrs per week, and are plotted at the value of the mean excess MET-hours/wk in each category

Errors bars are 95% CI

Estimates shown for cells with 200 or more participants