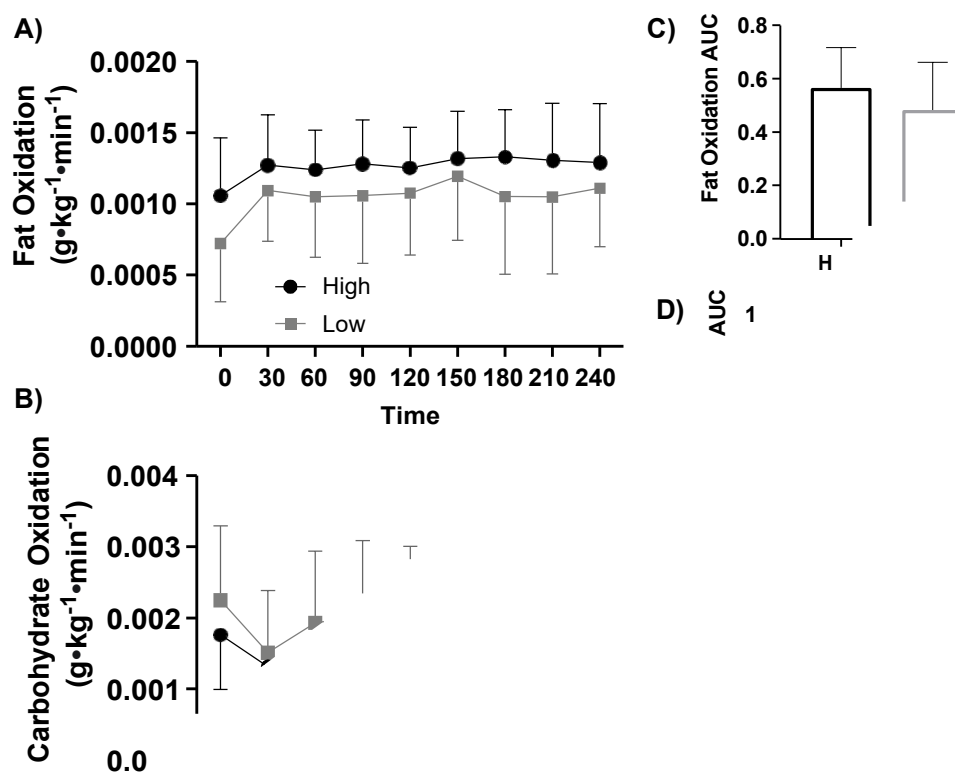


Table 1: Participant characteristics.

Measure	Overall	Sex		<i>P</i>	Fitness			Fitness within Sex					
		Males	Females		High	Low	<i>P</i>	HFM	LFM	<i>P</i>	HFF	LFF	<i>P</i>
n (M/F)	22	12	10		11 (6/5)	11 (6/5)		6	5		5	5	
Age (years)	23.00 (3.88)	23.17 (4.56)	22.90 (3.31)	0.879	23.81 (4.60)	22.26 (3.22)	0.373	25.00 (5.79)	21.80 (1.92)	0.271	22.20 (2.58)	23.60 (4.09)	0.537
Height (centimeters)	172.41 (7.82)	177.15 (6.39) ^a	166.73 (6.85) ^a	0.001	172.66 (5.90)	172.16 (10.55)	0.892	175.93 (6.33) ^b	178.36 (7.60) ^c	0.577	170.6 (3.72)	162.86 (7.38) ^{bc}	0.070
Weight (kilograms)	76.24 (12.74)	84.43 (11.72) ^a	66.41 (7.39) ^a	0.001	74.87 (6.58)	77.61 (5.46)	0.654	74.51 (4.99) ^b	90.46 (12.54) ^c	0.081	68.33 (4.97) ^{bc}	64.49 (8.82) ^{bc}	0.444
Fat-Free Mass (kilograms)	57.92 (11.95)	66.39 (10.09) ^a	47.75 (5.42) ^a	0.001	58.41 (8.27)	57.42 (16.09)	0.858	63.61 (6.50) ^b	71.66 (12.54) ^c	0.202	50.54 (2.80) ^{bc}	44.95 (6.23) ^{bc}	0.105
Fat Mass (kilograms)	18.32 (4.26)	18.04 (4.22)	18.66 (3.88)	0.728	16.46 (3.80) ^a	20.18 (3.35) ^a	0.024	15.80 (4.84)	21.03 (0.70)	0.042	17.78 (3.47)	19.53 (4.46)	0.510
Body Fat (%)	23.60 (5.37)	20.89 (3.91) ^a	26.99 (4.27) ^a	0.001	21.43 (4.46)	25.93 (5.11)	0.817	19.68 (4.69) ^b	22.98 (2.59) ^c	0.197	25.92 (3.54) ^{ab}	30.14 (4.18) ^{abc}	0.012
Visceral Adipose Tissue (grams)	242.15 (94.21)	290.40 (87.30) ^a	181.85 (56.81) ^a	0.002	227.70 (80.93) ^a	277.00 (89.18) ^a	0.027	246.6 (81.35)	353.80 (68.34) ^c	0.045	194.2 (64.88) ^c	211.0 (53.63) ^c	0.667
Waist-to-Hip Ratio	1.28 (0.08)	1.22 (0.06) ^a	1.34 (0.05) ^a	0.001	1.27 (0.05)	1.28 (0.10)	0.812	1.24 (0.04) ^b	1.18 (0.09) ^c	0.258	1.34 (0.05) ^c	1.33 (0.06) ^{bc}	0.999
$\dot{V}O_{2peak}$ (ml·kg ⁻¹ ·min ⁻¹)	40.92 (6.55)	42.79 (7.81)	38.65 (5.42)	0.173	46.64 (4.57) ^a	35.19 (3.17) ^a	0.001	49.21 (3.97) ^{ab}	37.90 (2.69) ^{bc}	0.001	43.10 (3.73) ^{abc}	34.20 (1.67) ^{abc}	0.002
Mitochondria oxidative capacity (OD·sec ⁻¹)	1.56 (0.63)	1.66 (0.79)	1.42 (0.46)	0.485	1.85 (0.80) ^a	1.20 (0.15) ^a	0.040	2.00 (0.95)	1.24 (0.18)	0.115	1.75 (0.58)	1.17 (0.09)	0.104

Note: HFM, high fitness males; LFM, low fitness males; HFF, high fitness females; LFF, low fitness females. ^a significantly different between groups $P \leq 0.05$; ^b significantly different between groups $P \leq 0.05$; ^c significantly different between groups $P \leq 0.05$.

Figure 1 Fat and carbohydrate oxidation response to a high-fat meal by fitness status.



Note: A) Fat oxidation (g·kg⁻¹·min⁻¹) in response to a high-fat meal between fitness status (ANOVA: *Time*, $P = 0.015$, $\eta_p^2 = 0.842$, $n = 19$), B) Carbohydrate oxidation (g·kg⁻¹·min⁻¹) in response to a high-fat meal between fitness status (ANOVA: *Time*, $P \leq 0.001$, $\eta_p^2 = 0.946$, $n = 19$), C) Fat oxidation AUC (Student *t*-test: $P = 0.415$, High: $n = 10$ vs. Low: $n = 9$), D) Carbohydrate oxidation AUC (Student *t*-test: $P = 0.690$, High: $n = 10$ vs. Low: $n = 9$), and E) Percent (%) of total substrate oxidation contribution (Student *t*-test: $P > 0.05$, High: $n = 10$ vs. Low: $n = 9$). High, high fitness status; Low, low fitness status; AUC, area under the curve.