

Supplementary Table 1: Optimal thresholds of peak oxygen uptake for the prevalence of cardiometabolic risk factors based on ROC curve analyses.

Risk factor		Area under the curve (95% CI)	Optimal threshold (mL·kg⁻¹·min⁻¹)	Sensitivity (%)	Specificity (%)
Elevated triglycerides ^a	Women	0.65 (0.59-0.71)	26.2	0.70	0.55
	Men	0.65 (0.59-0.71)	30.6	0.65	0.62
Reduced HDL cholesterol ^b	Women	0.62 (0.55-0.68)	24.5	0.54	0.67
	Men	0.62 (0.54-0.71)	31.0	0.69	0.56
Elevated blood pressure ^c	Women	0.61 (0.56-0.66)	25.9	0.54	0.65
	Men	0.65 (0.60-0.71)	31.1	0.56	0.69
Elevated fasting glucose ^d	Women	0.61 (0.55-0.67)	25.5	0.54	0.66
	Men	0.60 (0.53-0.67)	38.4	0.92	0.29

^a Elevated triglycerides as ≥ 1.7 mmol·L⁻¹ or pharmacological treatment for dyslipidemia.

^b Reduced HDL-cholesterol as < 1.3 mmol·L⁻¹ in women and < 1.0 mmol·L⁻¹ in men or pharmacological treatment for dyslipidemia.

^c Elevated blood pressure as systolic blood pressure ≥ 130 mmHg and/or diastolic blood pressure ≥ 85 mmHg or pharmacological treatment for hypertension.

^d Elevated fasting glucose as ≥ 100 mg·dL⁻¹ or pharmacological treatment for diabetes.

Supplementary Table 2: Associations between fitness, fatness and cardiometabolic risk factors.

	Elevated triglycerides^a	Reduced HDL cholesterol^b	Elevated blood pressure^c	Elevated fasting glucose^d
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Low peak oxygen uptake				
Women (<25.7 mL·kg ⁻¹ ·min ⁻¹)	2.68 (1.65-4.36)	1.79 (1.07-2.99)	2.02 (1.37-2.98)	2.39 (1.55-3.70)
Men (<30.7 mL·kg ⁻¹ ·min ⁻¹)	2.76 (1.67-4.55)	2.51 (1.28-4.92)	2.81 (1.79-4.40)	1.84 (1.11-3.05)
Pooled	2.69 (1.91-3.80)	2.05 (1.37-3.07)	2.31 (1.73-3.08)	2.07 (1.49-2.87)
High body mass index				
Women (≥25 kg·m ⁻²)	2.74 (1.67-4.50)	3.79 (2.14-6.74)	2.07 (1.41-3.03)	3.01 (1.92-4.72)
Men (≥25 kg·m ⁻²)	2.39 (1.37-4.16)	2.24 (1.06-4.74)	4.22 (2.70-6.57)	2.00 (1.21-3.31)
Pooled	2.57 (1.78-3.70)	3.21 (2.03-5.07)	2.84 (2.13-3.78)	2.37 (1.71-3.29)
High waist circumference				
Women (≥88 cm)	2.92 (1.73-4.93)	2.64 (1.50-4.65)	2.13 (1.45-3.13)	3.25 (2.06-5.13)
Men (≥102 cm)	1.50 (0.92-2.45)	1.99 (1.03-3.84)	3.29 (2.00-5.43)	2.18 (1.26-3.79)
Pooled	2.07 (1.47-2.93)	2.31 (1.52-3.50)	2.51 (1.86-3.39)	2.63 (1.86-3.71)
High percent body fat				
Women (≥35%)	2.93 (1.77-4.85)	1.97 (1.17-3.33)	1.65 (1.13-2.40)	2.60 (1.67-4.06)
Men (≥25%)	2.23 (1.35-3.68)	1.42 (0.74-2.71)	4.47 (2.88-6.94)	2.07 (1.27-3.38)
Pooled	2.53 (1.78-3.59)	1.78 (1.18-2.67)	2.56 (1.93-3.39)	2.22 (1.61-3.07)

^a Elevated triglycerides as ≥1.7 mmol·L⁻¹ or pharmacological treatment for dyslipidemia.

^b Reduced HDL-cholesterol as <1.3 mmol·L⁻¹ in women and <1.0 mmol·L⁻¹ in men or pharmacological treatment for dyslipidemia.

^c Elevated blood pressure as systolic blood pressure ≥130 mmHg and/or diastolic blood pressure ≥85 mmHg or pharmacological treatment for hypertension.

^d Elevated fasting glucose as ≥100 mg·dL⁻¹ or pharmacological treatment for diabetes.

Odds ratios (OR) are compared to the reference categories of either high peak oxygen uptake, low body mass index, low waist circumference, or low percent body fat. Adjusted for age, smoking status, alcohol consumption and physical activity (meeting/not meeting recommendation for moderate to vigorous physical activity measured by accelerometers). Pooled analyses for women and men are additionally adjusted for sex.

Supplementary Table 3: Odds ratios (95% CI) for cardiometabolic risk factors according to combined categories of fitness and fatness.

	Elevated triglycerides^a	Reduced HDL cholesterol^b	Elevated blood pressure^c	Elevated fasting glucose^d
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
VO_{2peak}^e and BMI^f				
High VO _{2peak} /low BMI	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
High VO _{2peak} / high BMI	1.96 (1.16-3.29)	3.63 (1.92-6.88)	2.64 (1.82-3.84)	2.00 (1.29-3.08)
Low VO _{2peak} / low BMI	2.11 (1.11-3.99)	2.34 (1.92-6.88)	2.09 (1.30-3.34)	1.62 (0.93-2.81)
Low VO _{2peak} / high BMI	4.35 (2.75-6.90)	4.80 (2.64-8.74)	4.19 (2.91-6.04)	3.42 (2.26-5.16)
VO_{2peak}^e and WC^g				
High VO _{2peak} /low WC	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
High VO _{2peak} / high WC	2.20 (1.28-3.76)	3.26 (1.76-6.04)	2.76 (1.81-4.19)	2.15 (1.33-3.48)
Low VO _{2peak} / low WC	3.24 (1.94-5.39)	2.94 (1.56-5.55)	2.49 (1.63-3.80)	1.57 (0.98-2.52)
Low VO _{2peak} / high WC	3.72 (2.39-5.79)	3.54 (2.04-6.15)	3.51 (2.43-5.07)	3.60 (2.61-5.49)
VO_{2peak}^e and %BF^h				
High VO _{2peak} /low %BF	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
High VO _{2peak} / high %BF	2.55 (1.52-4.29)	1.82 (1.00-3.32)	2.69 (1.81-4.01)	1.88 (1.19-2.96)
Low VO _{2peak} / low %BF	3.23 (1.76-5.93)	2.53 (1.28-4.99)	2.56 (1.55-4.23)	1.65 (0.93-2.92)
Low VO _{2peak} / high %BF	4.11 (2.65-6.39)	2.59 (1.57-4.29)	3.34 (2.38-4.70)	2.91 (1.97-4.28)

^a Elevated triglycerides as $\geq 1.7 \text{ mmol}\cdot\text{L}^{-1}$ or pharmacological treatment for dyslipidemia.

^b Reduced HDL-cholesterol as $< 1.3 \text{ mmol}\cdot\text{L}^{-1}$ in women and $< 1.0 \text{ mmol}\cdot\text{L}^{-1}$ in men or pharmacological treatment for dyslipidemia.

^c Elevated blood pressure as systolic blood pressure $\geq 130 \text{ mmHg}$ and/or diastolic blood pressure $\geq 85 \text{ mmHg}$ or pharmacological treatment for hypertension.

^d Elevated fasting glucose as $\geq 100 \text{ mg}\cdot\text{dL}^{-1}$ or pharmacological treatment for diabetes.

^e Low peak oxygen uptake (VO_{2peak}) as $< 25.7 \text{ mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$ in women and $< 30.7 \text{ mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$ in men.

^f High body mass index (BMI) as $\geq 25 \text{ kg}\cdot\text{m}^{-2}$.

^g High waist circumference (WC) as $\geq 88 \text{ cm}$ in women and $\geq 102 \text{ cm}$ in men.

^h High percent body fat (%BF) as $\geq 35\%$ in women and 25% in men.

Odds ratios (OR) are adjusted for sex, age, smoking status, alcohol consumption and physical activity (meeting/not meeting recommendation for moderate to vigorous physical activity measured by accelerometers).

Supplementary Table 4: Optimal thresholds of peak oxygen uptake for having high cardiometabolic risk^a based on ROC curve analyses for subgroups.

	Area under the curve (95% CI)	Optimal threshold (mL·kg ⁻¹ ·min ⁻¹)	Sensitivity (%)	Specificity (%)
WOMEN				
Physical activity^b				
Meeting recommendations	0.70 (0.61-0.79)	28.0	0.61	0.72
Not meeting recommendations	0.64 (0.57-0.70)	25.1	0.68	0.58
Education^c				
Higher education	0.73 (0.67-0.80)	26.8	0.78	0.62
No higher education	0.58 (0.52-0.65)	25.7	0.55	0.62
Alcohol consumption^d				
Lowest 50%	0.64 (0.57-0.71)	26.2	0.73	0.54
Highest 50%	0.65 (0.58-0.72)	27.2	0.66	0.59
Prescriptive medication				
None	0.72 (0.62-0.82)	25.7	0.61	0.75
Yes	0.63 (0.57-0.69)	25.7	0.59	0.63
MEN				
Physical activity^b				
Meeting recommendations	0.64 (0.53-0.74)	30.1	0.38	0.86
Not meeting recommendations	0.67 (0.60-0.74)	34.1	0.81	0.47
Education^c				
Higher education	0.66 (0.59-0.73)	30.3	0.53	0.73
No higher education	0.67 (0.59-0.75)	30.8	0.60	0.67
Alcohol consumption^d				
Lowest 50%	0.68 (0.60-0.75)	32.2	0.70	0.61
Highest 50%	0.64 (0.57-0.72)	30.1	0.67	0.59
Prescriptive medication				
None	0.72 (0.62-0.82)	31.6	0.56	0.78
Yes	0.59 (0.57-0.69)	30.7	0.58	0.60

^a High cardiometabolic risk defined as the presence of ≥ 2 of the following 4 risk factors: elevated triglycerides (≥ 1.7 mmol·L⁻¹) or pharmacological treatment for dyslipidemia; reduced HDL-cholesterol (< 1.3 mmol·L⁻¹ in women and < 1.0 mmol·L⁻¹ in men) or pharmacological treatment for dyslipidemia; elevated blood pressure (systolic ≥ 130 mmHg and/or diastolic ≥ 85 mmHg) or pharmacological treatment for hypertension; and elevated fasting glucose (≥ 100 mg·dL⁻¹) or pharmacological treatment for diabetes.

^b Meeting physical activity recommendations as ≥ 150 min·week⁻¹ of moderate to vigorous physical activity assessed by accelerometers.

^c Higher education as high school or university.

^d Alcohol consumption as ≤ 2 and ≤ 3 units·week⁻¹ for lowest 50% and ≥ 2.5 and ≥ 3.5 units·week⁻¹ for highest 50% in women and men, respectively.