

SUPPLEMENTARY DATA

Supplementary Table S1. Acute energy expenditure (EE) and respiratory values measured using indirect calorimetry.

	Summary Mean Values			Mean Differences			P-value for difference
	SIT	LW	SRA	LW minus SIT	SRA minus SIT	difference	
VO ₂ (L·min ⁻¹)	0.27 ± 0.01	0.46 ± 0.02	0.59 ± 0.02	0.2 ± 0.02	0.32 ± 0.02	0.13 ± 0.01	<0.001
VCO ₂ (L·min ⁻¹)	0.23 ± 0.01	0.38 ± 0.02	0.46 ± 0.02	0.15 ± 0.01	0.23 ± 0.01	0.08 ± 0.01	<0.001
VE (L·min ⁻¹)	7.93 ± 0.36	12.65 ± 0.40	13.52 ± 0.51	4.72 ± 0.39	5.58 ± 0.53	0.86 ± 0.44	0.060
RER	0.85 ± 0.02	0.83 ± 0.01	0.81 ± 0.01	-0.02 ± 0.01	-0.04 ± 0.01	-0.02 ± 0.01	0.049
EE (METS)	0.84 ± 0.02	1.47 ± 0.04	1.88 ± 0.05	0.62 ± 0.04	1.04 ± 0.05	0.41 ± 0.04	<0.001
EE (kcal·min ⁻¹)	1.29 ± 0.05	2.22 ± 0.10	2.81 ± 0.11	0.93 ± 0.07	1.52 ± 0.08	0.59 ± 0.06	<0.001

Data based on 23 participants and presented as mean SEM. SIT, average of 15 min of baseline resting sitting. LW, average of 2 x 3 min bouts of light-intensity walking. SRA, average of 2 x 3 min bouts of simple resistance activities. The difference column and its associated P-value represents the mean difference between LW minus SIT and SRA minus SIT, which takes into account the participants own relative baseline resting sitting (and thus accounting for within-participant variability). VO₂ = oxygen consumption. VCO₂ = carbon dioxide production. RER = Respiratory Exchange Ratio; expressed as a ratio of VCO₂ to VO₂; METS = Metabolic Equivalent of Task

Supplemental notes for indirect calorimetry calibration and data handling.

Breath-by-breath oxygen consumption (L·min⁻¹), carbon dioxide production (L·min⁻¹) and ventilation (L·min⁻¹) measurements were collected using open-circuit indirect calorimetry, standardized for room temperature. The first 5 min of respiratory data were discarded to ensure data collection during steady-state respiration, with 10-12 min prior the first activity bout used to determine a mean resting sitting baseline value. To account for anticipation and measurement return to baseline following each activity bout, data 2 min before and after the 3 min activity bout were included when summarizing the mean respiratory values for all activity bouts. Data from the 2 x bouts of LW and SRA in parts 1 and 2 of the protocol were averaged.

A volume calibration was completed prior to starting the protocol and at its midway point (between parts 1 and 2); barometric pressure and humidity were analyzed at 1-min intervals; with the system automatically recalibrating every 5 min. The metabolic cart was calibrated against a reference gas (16.02% oxygen and 0.98% carbon dioxide) and a two-way breathing facemask (Hans Rudolph 7450 Series Silicone V2 Oro-Nasal Mask, Kansas, US) attached to the metabolic cart by 2.7m, 35mm leak-proof tubing, securely fitted to the participant using an adjustable head strap.

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Supplementary Table S2. Net incremental area under the curve (iAUC) results following breakfast, lunch and overall for each experimental condition.

BREAKFAST iAUC	SIT	LW	SRA
Glucose (mmol·hL ⁻¹)	14.3 ± 1.0	9.7 ± 1.0*	9.7 ± 1.0*
Insulin (pmol·hL ⁻¹)	1494 ± 123	1020 ± 123*	1023 ± 123*
C-peptide (pmol·hL ⁻¹)	6455 ± 350	4987 ± 352*	4868 ± 351*
Triglycerides (mmol·hL ⁻¹)	0.7 ± 0.2	0.6 ± 0.2	0.3 ± 0.2*
LUNCH iAUC	SIT	LW	SRA
Glucose (mmol·hL ⁻¹)	5.0 ± 0.8	4.6 ± 0.8	3.8 ± 0.8
Insulin (pmol·hL ⁻¹)	316 ± 94	462 ± 88	410 ± 90
C-peptide (pmol·hL ⁻¹)	1084 ± 299	1279 ± 274	962 ± 276
Triglycerides (mmol·hL ⁻¹)	2.2 ± 0.2	1.6 ± 0.2*	1.5 ± 0.3*
OVERALL iAUC	SIT	LW	SRA
Glucose (mmol·hL ⁻¹)	24.2 ± 1.9	14.8 ± 1.9*	14.7 ± 1.9*
Insulin (pmol·hL ⁻¹)	3293 ± 208	2104 ± 208*	2066 ± 207*
C-peptide (pmol·hL ⁻¹)	15641 ± 657	11504 ± 661*	11012 ± 658*
Triglycerides (mmol·hL ⁻¹)	4.8 ± 0.6	4.0 ± 0.6	2.9 ± 0.6*†

Data are presented as mean ± SEM. The incremental area under the curves were calculated over the 3.5 h periods following breakfast and lunch and overall (includes 3.5 h post breakfast and lunch). SIT, Uninterrupted sitting. LW, sitting + light-intensity walking bouts. SRA, sitting + simple resistance activity bouts. *Difference from SIT (P<0.05). SRA different from LW (P<0.05).

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Supplementary Figure S3. Mean SEM glucose net incremental areas under the curve (iAUC) per trial condition for men (white bars) and women (black bars).

SIT, Uninterrupted sitting. LW, sitting + light-intensity walking bouts. SRA, sitting + simple resistance activity bouts. Percentage values within bars refer to the mean % change compared to SIT for each gender. *Difference from SIT per gender ($P < 0.05$). LW vs. SIT mean difference for women greater than LW vs. SIT mean difference for men ($P = 0.045$).

