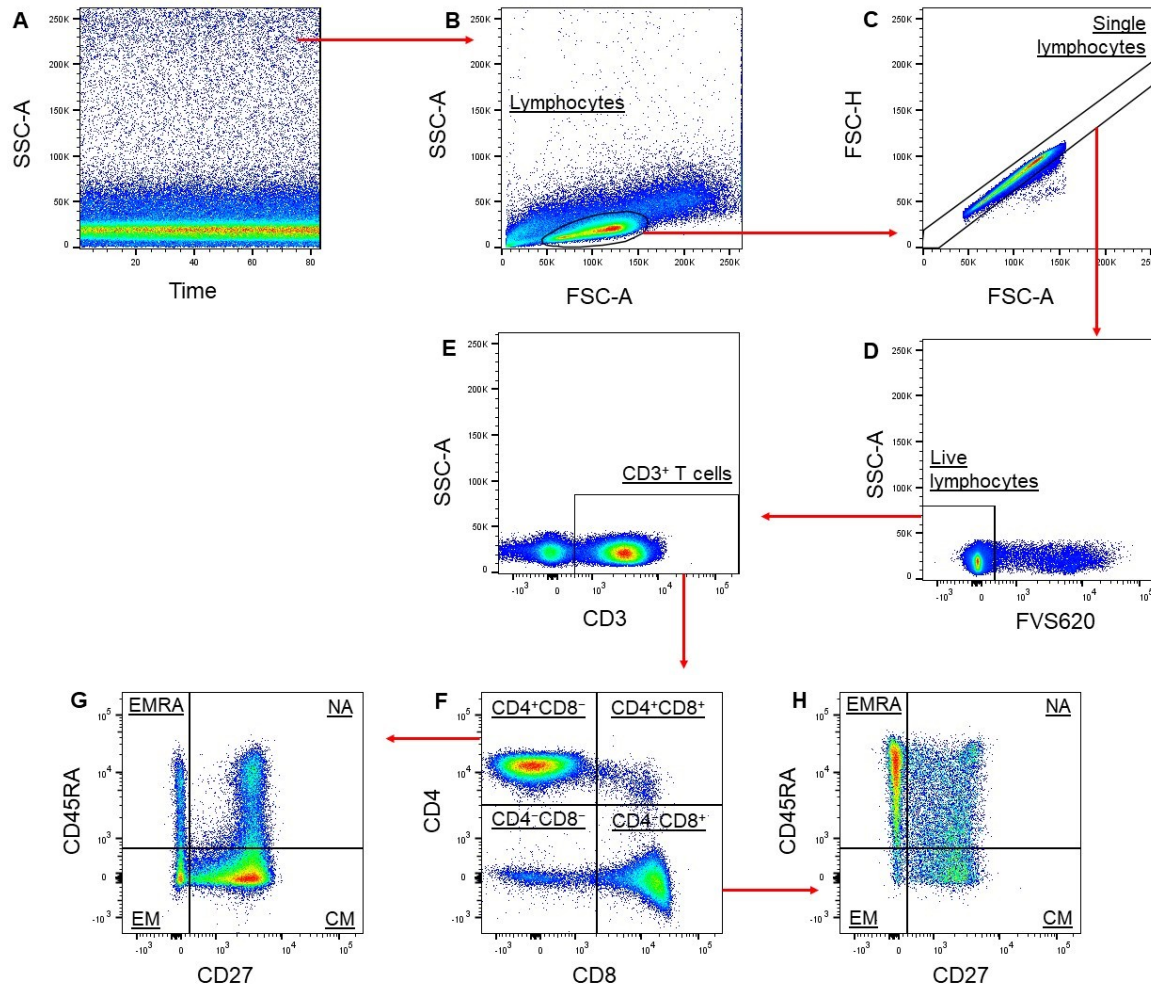**Supplemental Figure 1.** Flow cytometry gating strategy for identifying T cell populations.

(A) Time gating quality control performed to exclude cells acquired during periods of unstable fluidics; (B) Gating on SSC-A and FSC-A to identify lymphocytes according to morphology; (C) Gating on FSC-H and FSC-A to exclude doublets; (D) Gating on live-dead stain to identify living lymphocytes; (E) Gating on $CD3^+$ T cells; (F) Quadrant gating of CD4 and CD8 to identify $CD4^+$ and $CD8^+$ T cells, plus double-positive and double-negative T cells; (G) Quadrant gating of memory phenotypes within $CD4^+$ T cells to identify T_{NA}, T_{CM} and T_{EM} and T_{EMRA}; (H) Quadrant gating of memory phenotypes within $CD8^+$ T cells to identify T_{NA}, T_{CM} and T_{EM} and T_{EMRA}. Expression of CTLA4, PD1, CD57, and KLRG1 was examined within total $CD4^+$ T cell and $CD8^+$ T cell populations. T_{NA} = Naïve T cell; T_{CM} = Central memory T cell; T_{EM} = Effector memory T cell; T_{EMRA} = Effector memory T cell re-expressing $CD45RA^+$; CTLA4 = Cytotoxic T-lymphocyte associated protein 4; PD1 = Programmed cell death protein 1; KRLG1 = Killer cell lectin like receptor G1.

Supplemental Figure 2. Schematic diagram showing the structure of supervised and home-based exercise sessions, in the context of the 16-week exercise programme.
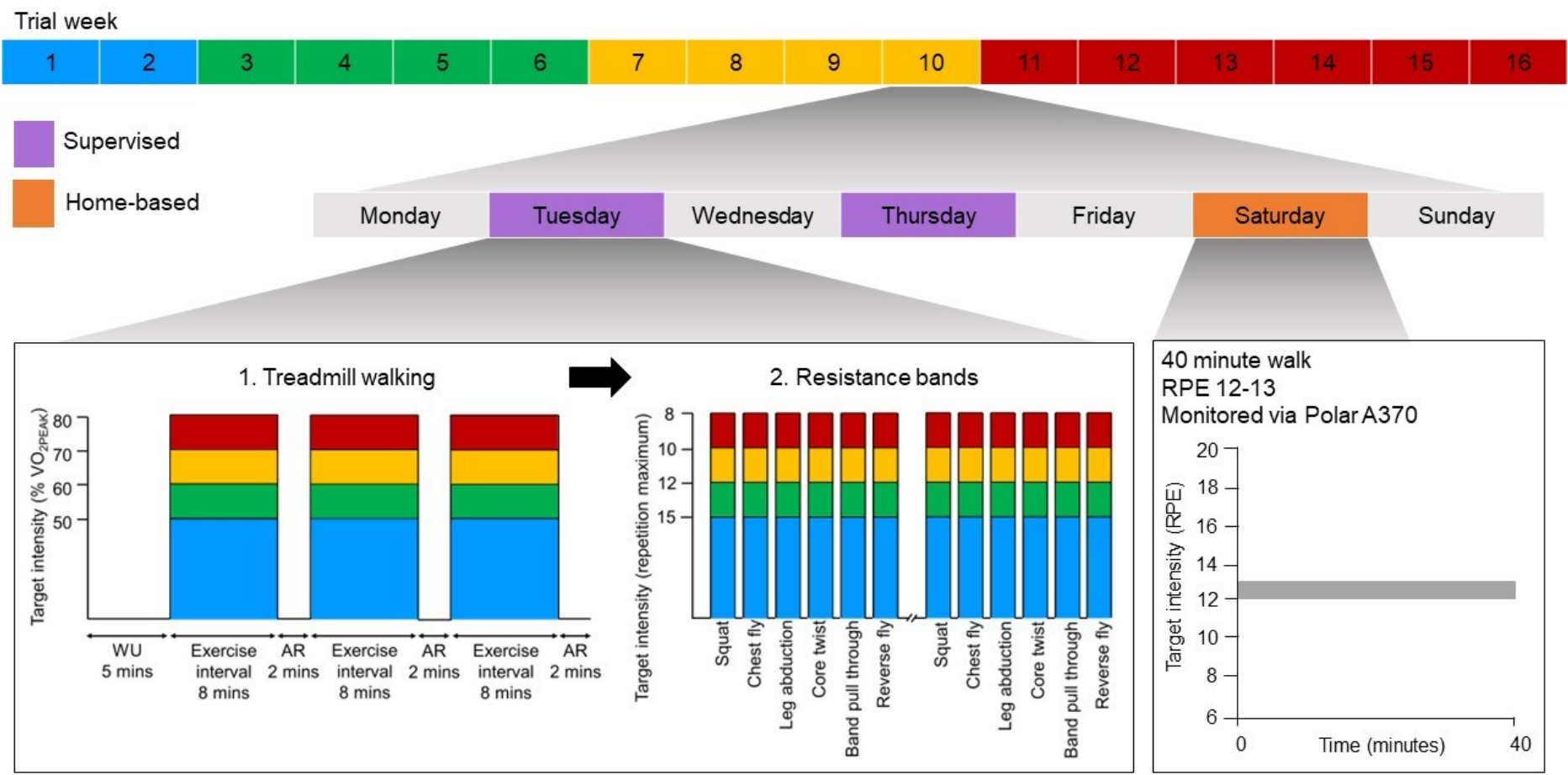
Each trial week comprised two supervised and one home-based exercise session. Colour-coding is used to link the trial week to the prescribed exercise intensities: Blue = weeks 1-2, 40-50% $\dot{V}O_{2PEAK}$, 15 repetitions; Green = weeks 3-6, 50-60% $\dot{V}O_{2PEAK}$, 12 repetition-maximum; Yellow = weeks 7-10, 60-70% $\dot{V}O_{2PEAK}$, 10 repetition-maximum; Red = weeks 11-16, 70-80% $\dot{V}O_{2PEAK}$, 8 repetition-maximum. Supervised sessions commenced with a five-minute warm-up, followed by 30 minutes of treadmill walking (8 minutes work:2 minutes active recovery). Next, two sets of six standardised resistance exercises were performed, unless participants experienced pain in given movement patterns, where substitutions were offered, e.g., reverse fly → low row, core twist → side bend, squat → sit-to-stand. Home-based exercise was a 40-minute walk at moderate intensity. The total prescribed weekly volume of aerobic exercise was 100 minutes at moderate intensity in weeks 1-6 and 100 minutes at moderate-vigorous intensity in weeks 7-16. WU = Warm-up; AR = Active recovery; $\dot{V}O_{2PEAK}$ = Peak oxygen uptake; RPE = Rating of perceived exertion.

Supplemental Table 1. Consensus on Exercise Reporting Template (CERT) reporting of exercise programme.

Section/topic	Item #	Checklist item	Location	
			Primary paper (page, table, appendix)	Other (paper or protocol, website URL)
WHAT: materials	1	Detailed description of the type of exercise equipment (e.g., weights, exercise equipment such as machines, treadmills, bicycle ergometer etc)	Page 6-7	
WHO: provider	2	Detailed description of the qualifications, teaching/supervising expertise, and/or training undertaken by the exercise instructor	Page 6	
HOW: delivery	3	Describe whether the exercises are performed individually or in a group	Page 6	
	4	Describe whether the exercises are supervised or unsupervised and how they are delivered	Page 6-7	
	5	Detailed description of how adherence to exercise is measured and reported	Page 7	
	6	Detailed description of motivational strategies	N/A	
	7a	Detailed description of the decision rule(s) for determining the exercise progression	Page 7	
	7b	Detailed description of how the exercise programme was progressed	Page 7	
	8	Detailed description of each exercise to enable replication (e.g., photographs, illustrations, videos etc)	N/A	
	9	Detailed description of any home programme components (e.g., other exercises, stretching etc)	Page 7	
	10	Describe whether there are any non-exercise components (e.g., education, cognitive behavioural therapy, massage etc)	N/A	
	11	Describe the number and type of adverse events that occurred during exercise	Page 8	
WHERE: location	12	Describe the setting in which the exercises are performed	Page 6-7	
WHEN, HOW MUCH: dosage	13	Detailed description of the exercise intervention including, but not limited to, number of exercise repetitions/sets/sessions, session duration, intervention/programme duration etc	Page 7	
TAILORING: what, how	14a	Describe whether the exercises are generic (one size fits all) or tailored to the individual	Page 7	
	14b	Detailed description of how exercises are tailored to the individual	Suppl. Fig 2	
	15	Describe the decision rule for determining the stating level at which people commence an exercise programme (such as beginner, intermediate, advanced etc)	N/A	
HOW WELL: planned, actual	16a	Describe how adherence or fidelity to the exercise intervention is assessed/measured	Page 7	
	16b	Describe the extent to which the intervention was delivered as planned.	Page 8	