

Table 2: Cardiorespiratory and Cardiovascular Effects of High Intensity Intermittent and Sprint Interval Training

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
21	9 men & 5 women, chronic heart failure, 68±6 years, BMI 24±n.r., VO _{2peak} 16±4	HIIT: 5 x 3 min cycling intervals at 80% VO _{2peak} with 3 active recovery periods at 40% VO _{2peak} x 3/wk x 12 wk	VO _{2peak} ↑23%, WR _{max} ↑29%, Q _{max} ↑31%, LVEF ↑27% vs baseline/CME/CON; SBP & DBP n.s.
	8 men & 5 women, chronic heart failure, 66±8 years BMI 24±n.r., VO _{2peak} 16±3	CME: 30 min cycling at 60% VO _{2peak} x 3/wk x 12 wk	VO _{2peak} , WR _{max} , Q _{max} , LVEF, SBP & DPB, n.s.
	9 men & 4 women, chronic heart failure, 68±9 years, 25±n.r., VO _{2peak} 21±5	CON: usual care with advice for home-based physical activity	VO _{2peak} & WR _{max} n.s.; Q _{max} ↓17% vs baseline & HIIT; LVEF, SBP & DBP n.s.
22	12 men & 2 women, chronic heart failure, 52±11 years, BMI 29±5, VO _{2peak} 16±4	SIT: 30 s cycle intervals at 50% W _{max} with 60 s passive recovery for 40 min x 3/wk x 12 wk	VO _{2peak} ↑9.6%, W _{max} ↑14% vs baseline; FMD n.s.
	12 men & 2 women, chronic heart failure, 54±10 years, BMI 28±4, VO _{2peak} 16±6	SIT&RET: 30 s cycle intervals at 50% W _{max} with 60 s passive recovery for 20 min & 20 min of resistance exercises (3 sets of 12 repetitions for hip flexors & extensors, biceps, & shoulders) x 3/wk x 12 wk	VO _{2peak} ↑17%, W _{max} ↑18% vs. baseline; FMD ↑63% vs baseline & SIT
23	13 men & 3 women, post stroke, 54±9 years, BMI 25±n.r., VO _{2peak} 19±4	HIIT: 4 min cycling at 40% of the max workload & 1 min at 80%, repeated 6 times x 3/wk x 12 weeks	VO _{2peak} 15%, 6-min walk test distance ↑16%
24	6 men & 2 women, coronary heart disease, 61±4 years, BMI 26±3, VO _{2peak} 27±5	HIIT: 4 x 4 min incline treadmill walking at 85-95% HR _{peak} with 3 min active recovery periods at 60-70% HR _{peak} x 8 wk (sessions/week: 5/5/5/3/3/3/3)	VO _{2peak} ↑17%, W _{max} ↑25%, Q _{max} ↑29% & LVEF ↑15% (p=0.06) vs baseline & RET
	10 men, coronary heart disease, 67±6 years, BMI 27±3, VO _{2peak} 29±4	RET: 4 sets of 4 repetitions of horizontal leg press at 85-90% 1RM 3/wk x 8 wk	VO _{2peak} , W _{max} , Q _{max} & LVEF n.s.

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
25	7 men & 3 women, coronary heart disease, 63±7 years, BMI 26±3, VO _{2peak} 27±5	HIIT: 4 x 4 min incline treadmill walking at 85-95% HR _{peak} with 3 min active recovery periods at 60-70% HR _{peak} x 3/wk x 10 wk	VO _{2peak} ↑16%, W _{max} ↑32%, Q _{80% VO_{2peak}} ↑23% vs baseline vs baseline
	6 men & 2 women, coronary heart disease, 61±7 years, BMI 27±3, VO _{2peak} 26±4	HIIT+O₂: 4 x 4 min incline treadmill walking at 85-95% HR _{peak} with 3 min active recovery periods at 60-70% HR _{peak} x 3/wk x 10 wk with 100% O ₂ enriched air provided during exercise	VO _{2peak} ↑15%, W _{max} ↑29%, Q _(80% VO_{2peak}) ↑28 vs baseline
26	8 men, post infarction heart failure, 62±8, BMI 28±2, VO _{2peak} 19±5	HIIT: 2-4 x 4 min incline treadmill walking at 75-80% HRR with 3 min active recovery at 45-50% HRR 3-5/wk x 12 week (sessions/week:2/2/2/3/3/3/4/4/4/5/5/5)	VO _{2peak} ↑22% vs baseline
	8 men, post infarction heart failure, 63±9, BMI 27±3, VO _{2peak} 18±4	CME: 30-45 min incline treadmill walking at 45-60% HRR 3-5/wk x 12 week (sessions/week:2/2/2/3/3/3/4/4/4/5/5/5) with variables matched to the HIIT group week by week	VO _{2peak} ↑22% vs baseline
27, 28	17 men & 3 women following percutaneous coronary intervention, 57±10 years, BMI 27±4, VO _{2peak} 23±6	HIIT: 4 x 4 min incline treadmill walking at 80-90% HR _{max} with 3 min active recovery periods at 60-70% HR _{max} 3/wk x 26 wk	VO _{2peak} ↑17% & FMD ↑338% vs. baseline & CON; SBP & DBP n.s.
	16 men & 4 women following percutaneous coronary, 61±10 years, BMI 28±3, VO _{2peak} 23±6	CON: usual care	VO _{2peak} ↑8%; SBP & DBP n.s.
29, 30	24 men & 4 women, following CABG, 60±7 years, BMI 26±6, VO _{2peak} 27±5	HIIT: 4 x 4 min incline treadmill walking at 90-95% HR _{max} with 3 min recovery periods at 70% HR _{max} 5/wk x 4 wk supervised, then advised to continue at home	At 4 wk: VO _{2peak} ↑12% & FMD ↑45% vs. baseline At 6 months: VO _{2peak} ↑18%; FMD declined to baseline
	24 men & 7 women, following CABG, 62±8 years, BMI 28±4, VO _{2peak} 26±5	CME: 47 min at 70% HR _{max} 5/wk for 4 wk (matched for energy expenditure with HIIT), then advised to continue at home	At 4 wk: VO _{2peak} ↑9% & FMD ↑34% At 6 months: VO _{2peak} ↑13%; FMD declined to baseline

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
31, 32	25 men & 5 women, post myocardial infarction, 57±10 years, BMI 27±3, VO _{2peak} 32±6	HIIT: 4 x 4 min incline treadmill walking at 90-95% HR _{max} with 3 min recovery periods at 70% HR _{max} 3/wk x 12 wk	At 12 weeks: VO _{2peak} ↑15% vs baseline & group exercise At 6 months: decline in VO _{2peak} At 30 months: further decline in VO _{2peak} but still above baseline
	49 men & 10 women, post myocardial infarction, 58±9 years, BMI 27±4, VO _{2peak} 32±7	Group session: 10 min warmup, 35 min aerobic exercise (walking/jogging/lunges), 15 min cool down, stretching & relaxation x 3/wk x 12 wk	At 12 weeks: VO _{2peak} ↑8% vs baseline At 6 months: n.s. decline in VO _{2peak} At 30 months: further decline in VO _{2peak} to baseline
33	8 (sex n.r.), type 2 diabetes, 63±8 years, BMI 32±6, VO _{2peak} n.r.	HIIT: 10 x 1 min intervals at ~90% HR _{max} with 1 min rest periods 3/wk x 2 wk	VO _{2peak} n.r., W _{max} , ↑10%
34	16 men, elderly, 65±4 years, BMI 21±n.r., VO _{2peak} 27±5	HIIT: 6 x 1 min cycling at VT ₂ with active recovery at VT ₁ 2/wk x 9 wk	VO _{2peak} ↑11%, WR _{max} ↑15% vs baseline
	19 women, elderly, 65±4 years, BMI 25±n.r., VO _{2peak} 19±4		VO _{2peak} ↑13%, WR _{max} ↑21% vs baseline & men
35	11 men, elderly, 74±4 years, BMI 28±4, VO _{2peak}	HIIT: 9 x 1 min cycling intervals at 85% HRR with 4 min active recovery at 65% HRR x 4/wk x 14 wk	VO _{2peak} ↑19%; R-R _{daytime} ↑12%, R-R _{24hr} 7.7%, sISBR ↑40%; SBP & DBP n.s.
36,	4 men & 7 women, metabolic syndrome, 55±13 years, BMI 30±2, VO _{2max} 34±3	HIIT: 4 x 4 min incline treadmill walking at 90-95% HR _{max} with 3 min recovery periods at 70% HR _{max} 3/wk x 16 wk	VO _{2peak} ↑35% vs baseline/CME/CON; SBP ↓6.3%, DBP ↓6.3% & FMD ↑180% vs. baseline & CON
	4 men & 4 women, metabolic syndrome, 52±11 years, BMI 29±2, VO _{2max} 36±3	CME: 47 min at 70% HR _{max} 3/wk for 16 wk (matched for energy expenditure with HIIT)	VO _{2peak} ↑16%; , SBP ↓7.6%, & FMD ↑180% vs baseline & CON
	5 men & 4 women, metabolic syndrome, 50±9 years, BMI 32±1, VO _{2max} 32±3	CON: no intervention	VO _{2peak} , SBP & DBP n.s.

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
37	11 (sex n.r.), metabolic syndrome, 50±10 years, BMI 31±4, VO _{2peak} 34±10	HIIT: 4 x 4 min incline treadmill walking at 90-95% HR _{max} with 3 min recovery periods at 70% HR _{max} 3/wk x 12 wk	VO _{2peak} ↑11% & FMD ↑~28% vs baseline; SBP, DBP n.s.
	11 (sex n.r.), metabolic syndrome, 51±8 years, BMI 32±4, VO _{2peak} 32±5	RET: 3 sets of 8-12 repetitions x 3-5 exercises x 3/wk x 12 wk	VO _{2peak} n.s.; FMD ↑~28% vs baseline; SBP, DBP n.s.
	10 (sex n.r.), metabolic syndrome, 53±10 years, BMI 30±4, VO _{2peak} 28±6	HIIT+RET: HIIT as above 2/wk, 3 resistance exercises for 8-12 repetitions 1/wk, all for 12 wk	VO _{2peak} ↑10%; FMD ↑~38% vs baseline; SBP, DBP n.s.
	11 (sex n.r.), metabolic syndrome, 47±10 years, BMI 32±4, VO _{2peak} 34±10	CON: no exercise	VO _{2peak} , FMD SBP & DBP n.s.
71	11 women, familial history of hypertension, 24±4 years, BMI 24+5, VO _{2max} 29±4, BP 106/65	HIIT: walking: 1 min at 80-90% VO _{2max} 2 min walking at 50-60% for 40 min + 15 min calisthenics 3/wk x 16 wk	VO _{2max} ↑16% vs baseline & CME, HRR ↑75% vs baseline & CON; 24 hr SBP ↓1.8% & DBP ↓2.8% vs baseline, daytime BP n.s., nighttime SBP ↓3.8% & DBP ↓5.8. vs baseline
	11 women, familial history of hypertension, 27±5 years, BMI 24±5, VO _{2max} 30±4, BP 105/65	CME: walking at 60-70% VO _{2max} for 40 minutes + 15 min calisthenics 3/wk x 16 wk	VO _{2max} ↑8% vs baseline, HRR n.s.; 24 hr SBP ↓2.4% & DBP ↓3.0% vs baseline, daytime BP n.s., nighttime SBP ↓3.4% & DBP ↓5.0% vs baseline
	9 women, familial history of hypertension, 25±4 years, BMI 24±4, VO _{2max} 30±4, BP 106/62	CON: No intervention	VO _{2max} , HRR, 24 hr, daytime & nighttime BP n.s.
39	12 men, overweight/obese, 24±5 years, BMI 29±3, VO _{2peak} 38±6	HIIT: 6 x 4 min cycling at 85% VO _{2peak} , with 2 min rest x 6 sessions over 14 d.	VO _{2peak} ↑8.3%; SBP & DBP n.s.

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
40	8 men, sedentary, 37±8 years, BMI n.r. (BW 96±11 kg), VO _{2peak} 36±5	HIIT: 5 x 2 min running >95% HR _{max} with 2 min rest periods 3/wk x 12 wk	VO _{2max} ↑14% vs baseline & other groups; SBP ↓6.2% vs baseline; DBP n.s.
	9 men, sedentary, 31±6 years, BMI n.r. (86±16 kg), VO _{2peak} 39±7	CME: 60 min running at 80% HR _{max} (~65% VO _{2peak}) 3/wk x 12 wk	VO _{2max} ↑7%, SBP ↓6.1% & DBP ↓6.2% vs baseline
	8 men, sedentary, 36±6 years, BMI n.r. (95±24 kg), VO _{2peak} 38±9	RET: 60 min 3-4 sets of: squat, hack squat, incline leg pres, isolated knee extension, hamstring curls, and calf raises 3/wk x 12 wk	VO _{2max} , SBP & DBP n.s.
	11 men, sedentary, 30±6 years, BMI n.r. (87±11 kg), VO _{2peak} 39±8	CON: no exercise x 12 wk	VO _{2max} , SBP & DBP n.s.
41	7 (sex n.r.), sedentary overweight, 41±12 years, BMI 31±3, VO _{2peak} ~23±n.r.%	HIIT: 10 x 1 min cycling at 90% VO _{2peak} with 2 min recovery at 30% VO _{2peak} x 4 sessions/wk for 8 wk, & diet education (1 hour seminar)	VO _{2peak} ↑24% & time to exhaustion on exercise test ↑23% vs baseline; SBP & DBP n.s.
	6 (sex n.r.), sedentary overweight, 45±17 years, BMI 30±3, VO _{2peak} ~24±n.r.%	CME: 50% VO _{2peak} matched to energy expenditure of HIIT for time, & diet education (1 hour seminar).	VO _{2peak} ↑19% & time to exhaustion on exercise test ↑24% vs baseline; SBP & DBP n.s.
	8 (sex n.r.), sedentary overweight, 40±13 years, BMI VO _{2peak} ~23±n.r.%	Diet: diet education only (1 hour seminar).	VO _{2peak} , SBP & DBP n.s.
42	3 men & 11 women, sedentary, 47±8 years, BMI 37±4, VO _{2peak} 24±5	HIIT: 4 x 4 min treadmill walking/running at 85-95% HR _{max} with 3 min active recovery periods at 50-60% HR _{max} 3/wk x 12 wk	VO _{2max} ↑33% vs baseline/CME/RET; DBP ↓7% vs. baseline/RET; SBP n.s.
	2 men & 11 women, 44±8 years, BMI 37±5, VO _{2peak} 25±5	CME: 47 min walking/jogging at 50–60% of HR _{max}	VO _{2max} ↑16% vs baseline; DBP ↓9% vs. baseline/RET; SBP n.s.
	3 men & 10 women, 46±10 years, VO _{2peak} 25±7	RET: 4 sets of 5 repetitions on leg press/squat & 3 sets of 30 repetitions on unspecified abdominal & back exercises	VO _{2max} ↑10% vs baseline; SBP & DBP n.s.

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
43	5 men & 5 women, sedentary, 18-32 years, BW 64±11, VO _{2peak} 39±9	HIIT&SIT: 4 sessions/wk for 15 weeks with a mix of CME at 70% HRR, SIT (15-30 s intervals) and HIIT (60-90 s intervals) sessions. Recovery periods were based on HR returning to 120-130 bpm	VO _{2peak} ↑26% vs. baseline
	8 men & 9 women, sedentary, 18-32 years, BW 61±13, VO _{2peak} 37±8	CME: 4 sessions/wk x 20 weeks: 30-45 min at 60-85% HRR at approximately twice the E expenditure of HIIT&SIT	VO _{2peak} ↑32% vs. baseline
44	8 (sex n.r.), sedentary overweight/obese, 40±8 years, BMI 28±4, VO _{2peak} n.r.	HIIT: Thrice weekly cycle ergometry at 20% above anaerobic threshold at a 2:1 exercise/rest ratio: wk 1-4 for 20, 30, 40, 50 min, respectively, then 60 min sessions x 3/wk x 12 wk	Anaerobic threshold ↑92% vs. baseline
	8 (sex n.r.), sedentary overweight/obese, 40±8 years, BMI 28±2, VO _{2peak} n.r.	CME: Thrice weekly cycle ergometry at 10% below anaerobic threshold: wk 1-4 for 20, 30, 40, 50 min, respectively, then 60 min sessions for 8 wk (total duration of 12 wk).	Anaerobic threshold ↑42% vs. baseline & CME
45	10 men, sedentary overweight/obese, 32±9 years, BMI 31±4, VO _{2peak} 33±1	SIT: 4-7 bouts of 30 s cycle sprints at 6.5% FFM resistance 3/wk for 2 wk (sprints/session: 4/4/5/5/6/6) with 4.5 min active at 30 W resistance	VO _{2peak} ↑9.5% & SBP ↓4.7%; DBP n.s. (change in SBP was only significant at 24 hr but not 72 hr post-exercise)
46	14 women, overweight/obese, 30±7 years, BMI 36±6, VO _{2max} 22±1	SIT: Six sessions over 28 days: 4-7 (increased by 1 every week) 30 s sprints against resistance of 5% BW with 4 min recovery between sprints.	VO _{2max} ↑13% vs baseline & CON
	14 women, overweight/obese, 31±6 years, BMI 35±6, VO _{2max} 21±1	CON: Maintenance of baseline physical activity	VO _{2max} n.s.

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
47	8 women, sedentary, 23±3 years, BMI 23±2, VO _{2peak} 33±2	SIT: cycling 10 min total containing 2 all out sprints for 10/15/20/20/20/20 s in wk 1-6 x 3/wk, respectively, remaining time was at 60 W	VO _{2peak} ↑12% vs baseline & CON
	8 women, sedentary, 22±1 years, BMI 23±2, VO _{2peak} 33±2	CON: no exercise	VO _{2peak} n.s.
	7 men, sedentary, 26±3 years, BMI 24±2, VO _{2peak} 36±2	SIT: cycling 10 min total containing 2 all out sprints for 10/15/20/20/20/20 s in wk 1-6, respectively, remaining time was at 60 W	VO _{2peak} ↑15% vs baseline & CON
	6 men, sedentary, 25±2 years, BMI 24±2, VO _{2peak} 38±3	CON: no exercise	VO _{2peak} n.s.
48	3 men & 6 women, sedentary, 24±4 years, BMI 25±2, VO _{2peak} 35±7	SIT moderate: 10:20 s sprint:active recovery at 120% W _{peak} & 20 W, respectively, done for 30, 35, & 40 minutes in wk 1-2, 3-4, & 4-6, respectively x 3/wk	VO _{2peak} & FMD n.s.
	4 men & 7 women, sedentary, 23±3 years, BMI 23±3, VO _{2peak} 41±8	SIT heavy: 30:60 s sprint:active recovery at 120% W _{peak} & 20 W, respectively, done for 30, 35, & 40 minutes in wk 1-2, 3-4, & 4-6, respectively x 3/wk	VO _{2peak} ↑15% vs. baseline & SIT moderate; FMD n.s.
49	5 men & 5 women, sedentary, 24±1 years, BMI 24±n.r., VO _{2peak} 41±2 ml/kg/min	SIT: 4-6 bouts of 30s cycle sprints braked at 7.5% body weight 3/wk x 6 wk (bouts/session/week: 4/4/5/5/6/6/)	VO _{2peak} ↑7% (at week 3 & 6 vs baseline)
	5 men & 5 women, 23±1 years, BMI 24±n.r., VO _{2peak} 41±2 ml/kg/min	CME: Continuous cycling ~65% VO _{2peak} 40-60 min (length ↑10 min/fortnight) 5/wk for 6 weeks.	VO _{2peak} ↑2% & ↑10% at week 3 & 6 vs baseline, respectively
50	11 men, active, 25±6 years, BMI 25±n.r., VO _{2peak} 46±4	SIT: 4-6 30 s cycle sprints against resistance of 7.5% BW with 5 min unloaded cycling between sprints (sprints per session: 4/4/5/5/6/6)	VO _{2max} ↑5.9% & W _{peak} ↓10%
	9 women, active, 25±3 years, BMI 22±n.r., VO _{2peak} 41±6		VO _{2max} ↑6.8% & W _{peak} ↓9.0%
	5 men, active, 23±3 years, BMI 25±n.r., VO _{2peak} 46±7	CON: before & after tests but no intervention	VO _{2max} n.s.
	4 women, active, 23±3 years, BMI 24±n.r., VO _{2peak} 39±2		VO _{2max} n.s.

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
51	5 men & 3 women, healthy active, 21±5 years, BMI 25±n.r., VO _{2peak} 42±6 ml/kg/min	SIT: Six sessions over 14 days: 4-7 30 s sprints against resistance of 7.5% BW with 4 min recovery between sprints (sprints per session: 4/5/6/6/7/7).	VO _{2peak} ↑7%, & VO ₂ slow component amplitude ↓23% vs. baseline/CME/CON
	5 men & 3 women, healthy active, 20±4 years, BMI 24±n.r., VO _{2peak} 43±5 ml/kg/min	CME: 80 rpm continuous cycling at 80% GET for a duration matched to give work equivalent to SIT group.	VO _{2peak} & VO ₂ slow component amplitude n.s.
	5 men & 3 women, healthy active, 20±1 years, BMI 23±n.r., VO _{2peak} 47±8 ml/kg/min	CON: Habitual physical activity.	VO _{2peak} & VO ₂ slow component amplitude n.s.
52	15 women, healthy, 22±1 years, BMI 24±2, VO _{2peak} 29±8	SIT: 3 sessions/wk over 15 wk: 8 s sprints/12 s active (20-30 rpm) recovery at 0.5 kg resistance. Progressing from 5 min sessions to 20 min sessions with 0.5 kg resistance added once 20 minutes	VO _{2peak} ↑24% vs baseline & CON
	15 women, healthy, 21±1 years, BMI 22±1, VO _{2peak} 31±8	CME: 3 sessions/wk over 15 weeks: 10-20 min at 60% VO _{2peak} for 10-20 min progressing to 40 minutes	VO _{2peak} ↑20% vs baseline & CON
	15 women, healthy, 22±1 years, BMI 24±1, VO _{2peak} 31±6	CON: No change in physical activity over 15 wk	VO _{2peak} n.s.
53	35 men & 13 women, active, 24±3 years, BMI 25±n.r., VO _{2peak} n.r. (NB: data were reported for the entire cohort only with groups matched for VO _{2peak} & sex)	SIT: 4-6 bouts of 30 s cycle sprints 10% BW resistance with 4 min active recovery (no resistance) 3/wk for 2 wk (bouts/session: 4/4/5/5/6/6)	VO _{2peak} ↑9.3%; 5 km time trial time ↓5.2%; peak power ↑9.5% vs baseline & CON
		SIT: 4-6 bouts of 10 s cycle sprints 10% BW resistance with 4 min active recovery (no resistance) 3/wk for 2 wk (bouts/session: 4/4/5/5/6/6)	VO _{2peak} ↑9.2%; 5 km time trial time ↓3.5%; peak power ↑8.5% baseline & CON
		SIT: 4-6 bouts of 10 s cycle sprints 10% BW resistance with 2 min active recovery (no resistance) 3/wk for 2 wk (bouts/session: 4/4/5/5/6/6)	VO _{2peak} ↑3.8% (<i>p</i> =0.06); 5 km time trial time ↓3.0%; peak power ↑4.2% baseline & CON
		CON: no exercise	VO _{2peak} ; 5 km time trial time; & peak power n.s. vs baseline

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
54	5 men & 5 women, healthy, 24±1 years, BMI 24±n.r., VO _{2peak} 41±2	SIT: 4-6 bouts of 30 s cycle sprints 7.5% BW resistance with 4.5 min active recovery (30 W resistance) 3/wk x 6 wk (intervals/session/week: 4/4/5/5/6/6)	VO _{2peak} ↑7%
	5 men & 5 women, healthy, 23±1 years, BMI 24±n.r., VO _{2peak} 41±2	CME: 40-60 min cycling at 65% VO _{2peak} 5/wk x 6 wk (time/session/week: 40/50/60)	VO _{2peak} ↑10%
55	16 men, active, 22±2 years, BMI 24±3, VO _{2peak} 48±9	SIT: 4-6 30 s cycle sprints against resistance of 7.5% BW with 4 min unloaded cycling between sprints x 3/wk x 2 wk (sprints per session: 4/4/5/5/6/6)	Work output during time trial ↑6%
56	15 men & 10 women, hypertensive, 53±7 years, BMI 27±4, VO _{2peak} 36±9	HIIT: 4 x 4 min incline treadmill walking at 90-95% HR _{max} with 3 min recovery periods at 60-70% HR _{max} 3/week x 12 weeks	VO _{2max} ↑14% vs baseline & CME; 24-hour SBP ↓7.8% & nighttime SBP ↓7.5% vs. baseline & CME; 24 hour DBP ↓8.6%, daytime SBP ↓8.1% & DBP ↓8.7%, nighttime DBP ↓6.1% vs baseline; FMD ↑64% & LVEF ↑11% vs. baseline & CME; SV ↑11% & CO ↑13% vs. baseline
	13 men & 10 women, hypertensive, 54±7 years, BMI 28±4, VO _{2peak} 34±7	CME: walking/running on treadmill at 70% of HR _{max} , for 47 min to ensure isocaloric training sessions to the HIIT group	VO _{2max} ↑5%, 24-hour SBP 3.2% & DBP ↓3.8%, daytime SBP ↓3.2% & DBP ↓4.3% vs. baseline; nighttime BP, FMD, SV, CO, & LVEF n.s.
	14 men & 11 women, hypertensive, 51±9 years, BMI 29±4, VO _{2peak} 35±8	CON: standard advice for essential hypertension, including 'regular light-moderate intensity exercise'	VO _{2max} & BP n.s. except nighttime SBP ↓3.9%; FMD, SV, CO, & EF all n.s.
57	10 men & 6 women, sedentary seniors, 72±2 years, BMI 25±1, VO _{2max} 33±6	HIIT: 4 x 4 min incline treadmill walking at 90-95% HR _{max} with 3 min recovery periods at 60-70% HR _{max} 3/wk x 12 wk	VO _{2max} ↑14%, SBP ↓12%, DBP ↓8.8%, SV ↑9% & LVEF ↑13%; CO n.s.
58	7 men, sedentary, 47±7 years, BMI 26± [†] ; 4 women, sedentary, 42±6 years, BMI 21±1, VO _{2peak} ~29 (combined men & women)	HIIT: 1 min intervals at 90% W _{max} with 3 min active recovery at 1 st ventilatory threshold x 3/wk x 8 wk; total duration 20, 25, 30, & 35 min in wk 1-2, 2-4, 5-6, & 7-8, respectively	VO _{2peak} ↑15%; Q _{max} ↑11%, SV ↑8%, & arteriovenous oxygen difference ↑16% vs. baseline
		CME: intensity = (4 x 1 st ventilatory threshold + 90% W _{max})/5 to match energy expenditure & exercise time with HIIT	VO _{2peak} ↑9% & arteriovenous oxygen difference ↑10% vs baseline; Q _{max} & SV n.s.

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
59	20 men, sedentary & overweight, 25±5 years, BMI 28±1, VO _{2peak} 34±1	SIT: 8 s sprints with 12 s recovery periods at a cadence of 120-130 & 40, respectively, for 20 min at 80-90% HR _{peak} x 3/ wk for 12 w	VO _{2peak} ↑15% vs baseline & CON
	18 men, sedentary & overweight, 25±4 years, BMI 29±1, VO _{2peak} 29±1	CON: no exercise	VO _{2peak} n.s.
60	17 women, BF >30%, 20±1 years, BMI 28±2, VO _{2peak} 33±4	HIIT: 5 x 3 min of track running at 85% VO _{2max} with 3 min active recovery at 50% VO _{2max} 5/wk x 12 wk	VO _{2max} ↑8.4% vs baseline/CON/CME; LVEF ↑4.7% vs. baseline & CON
	16 women, BF >30%, 19±1 years, BMI 28±2, VO _{2peak} 33±5	CME: 40 min walking/jogging at 50% VO _{2max} 5/wk x 12 wk	VO _{2max} ↑4.8% & LVEF ↑1.5% vs CON
	19 women, BF >30%, 20±1 years, BMI 29±2, VO _{2peak} 33±4	CON: no exercise	VO _{2max} & LVEF n.s.
61	2 men & 8 women, obese, 37±10 years, BMI 32±4, VO _{2peak} 27±5	HIIT+Diet: Up to 10 x 4 minutes cycling at 90% VO _{2peak} with 2-3 minutes rest periods, for 6 supervised sessions over 14 days. (see below for diet)	VO _{2peak} ↑16%
	3 men & 6 women, obese, 41±14 years, BMI 32±3, VO _{2peak} 26±9	Diet: 75% of food record estimated requirement (35% CHO)	VO _{2peak} n.s.
62	7 men, active, 20-40 years, BMI 25±3, VO _{2peak} 37±7	HIIT: 4 x 4 min treadmill running at 90% VO _{2peak} with 4 min recovery periods at 60% VO _{2peak} 3/wk x 8 wk	VO _{2peak} ↑20% vs baseline & CON
	8 men, active, 20-40 years, BMI 23±2, VO _{2peak} 40±16	CON: no intervention	VO _{2peak} n.s.
63	20 men, active, 30±5 years, BMI 23±4, VO _{2peak} n.f.	HIIT: 4 x 800 m runs at ~90% age predicted HR _{max} (220-age) with a 1:1 work-to-rest ratio 3/wk x 8 wk	time to run 2.4 km ↓9.2% vs baseline & CON
	16 men, active, 30±5 years, BMI 23±2, VO _{2peak} n.f.	CON: no vigorous exercise	time to run 2.4 km n.s. vs baseline

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
64	9 women, active, 23±3 years, BMI 22±1, VO _{2peak} 41±5	HIIT1: 1 min cycling bouts at MTP x 9 with 4 min active recovery periods at VT x 3/wk x 6 wk	VO _{2peak} ↑6.5%; WR _{max} ↑20% vs baseline & CON
	9 women, active, 22±3 years, BMI 21±2, VO _{2peak} 43±5	HIIT2: 1 min cycling bouts x 9 with 4 min active recovery periods at VT x 3/wk x 6 wk with intensity based on a 10 point RPE scale	VO _{2peak} ↑9.9%; WR _{max} ↑12% vs baseline & CON
	9 women, active, 23±2 years, BMI 22±2, VO _{2peak} 42±5	CON: no exercise	VO _{2peak} & WR _{max} n.s.
65	7 women, active, 23±7 years, BMI 23±n.r., VO _{2peak} 40±n.r.	HIIT: 3 x 2 min cycling intervals at ~100% VO _{2peak} with 6 min recovery x 3/wk x 8 wk	After 4 wk: time to exhaustion ↑29% vs baseline After 8 wk: VO _{2peak} n.s., W _{max} ↑11%, time to exhaustion ↑56% vs baseline
	7 men, active, 24±4 years, BMI 23±n.r., VO _{2peak} 44±n.r.		After 4 wk: time to exhaustion ↑31% vs baseline After 8 wk: VO _{2peak} ↑7.9% vs baseline & women, W _{max} ↑11%, time to exhaustion ↑73% vs baseline
66	12 men, active, 25±4 years, BMI n.r. (BW 83±7 kg), VO _{2peak} 44±n.r. (NB: volunteer demographics were not provided by intervention group)	HIIT: 8-12 1 min cycling bouts at 120% WR _{max} x 8 sessions (intervals/session: 8/8/9/9/10/10/12/12)	VO _{2peak} ↑4.3%; WR _{max} ↑8.8% vs. baseline
		CME: 90-120 min cycling at 65% VO _{2peak} x 8 sessions (time/session: n.r.)	VO _{2peak} ↑7.0%; WR _{max} ↑8.4% vs. baseline
67	5 men & 5 women, healthy, 23±3 years, BMI 24±2, VO _{2peak} 41±2	SIT: 4-6 bouts of 30s cycle sprints braked at 7.5% body weight 3/wk for 6 wk (bouts/session/week: 4/4/5/5/6/6/)	VO _{2peak} ↑7%, FMD ~↑117% & popliteal artery distensibility ↑~60% vs. baseline; carotid artery distensibility n.s.
	5 men & 5 women, healthy, 24±3 years, BMI 24±2, VO _{2peak} 41±2	CME: Continuous cycling ~65% VO _{2peak} 40-60 min (length ↑10 min/fortnight) 5/wk for 6 weeks.	VO _{2peak} ↑10%, FMD ~↑40%; popliteal artery distensibility ↑~57% vs baseline; carotid artery distensibility n.s.
68	5 men & 3 women, active, 24±1 years, BMI 23±n.r., VO _{2peak} 45±n.r.	HIIT: 4 min cycle intervals at ~90% VO _{2peak} x 10 intervals with 2 min rest 3/wk x 6 wk	VO _{2peak} ↑9%
69	7 men, active, 21±1 years, BMI n.r. (BW 83±4 kg), VO _{2peak} n.r.	HIIT: 8-12 x 1 min cycling at VO _{2peak} with 75 s active recovery against 30 W resistance x 2 weeks (intervals per session: 8/8/10/10/12/12)	750 kJ exercise test: time to complete ↓9%, mean power ↑10%

Reference	Baseline Population	Protocol	Cardiorespiratory and Cardiovascular Changes
70	10 women, active, 22±1 years, BMI n.r. (BW 65±2 kg), VO _{2peak} ~43±n.r.	HIIT: 10 x 4 min cycling at 90% VO _{2peak} with 2 min active rest periods 3/wk x 6 wk	Average power output by wk (1 vs. 2, 1 vs. 3... 1vs. 6): ↑9.1%, ↑19%, ↑23%, ↑28%, ↑33%.

Study population demographics (sample size by sex, health or training status, body mass index in kg/m², and either VO_{2peak} or VO_{2max} in mL/kg/min, as reported by study authors, are provided as means ± standard deviation, where reported, rounded to nearest whole number. Sample sizes are based on those included in the final analysis. Results have been converted to percentage change from baseline if the change was statistically significant followed by indication if this was significant relative to comparison group(s). Results are provided to two significant figures. Where data was reported in graph form it may not have feasible to accurately calculate percentage change so ~ is used to indicate this. The protocol column contains the core exercise but does not describe warm up and cool down protocols, which consisted predominantly of 5-10 minutes periods of light-to-moderated intensity activity. **Abbreviations:** ABP, ambulatory blood pressure; AUGC, area under the glucose curve; AUCI, area under the insulin curve; AUNC, area under the non-esterified fatty acid curve; BF, body fat; BMI, body mass index (kg/m²); BP, blood pressure systolic/diastolic mm Hg; BW, body weight; CABG, coronary artery bypass graft; CGM, continuous glucose monitoring; CO, cardiac output; CON, control group; DBP, diastolic blood pressure; FMD, flow mediated dilations; GET, gas exchange threshold; hr, hour; HRR, heart rate reserve; hsCRP, high sensitivity c-reactive protein; HDL, high-density lipoprotein; HIIT, high intensity intermittent training group; IS, insulin sensitivity; ISI, insulin sensitivity index; LVEF, left ventricular ejection fraction; min, minutes; MTP, maximum tolerated power (the maximum power output that could be sustained for 1 minute); NEFA, non-esterified fatty acids; n.r., not reported; n.s., no statistically significant change/difference; OGTT, oral glucose tolerance test; OGIS, insulin sensitivity calculated from 2 hour oral glucose tolerance test; s, seconds; Q, cardiac output; RER, respiratory exchange ratio at rest; RET, resistance exercise training group; RM, repetition maximum; RPE, rate of perceived exertion; RQ, respiratory quotient; SBP, systolic blood pressure; SIT, sprint interval training group; sISBR; spontaneous cardiac baroreflex; SV, stroke volume; TAG, triacylglycerol; TC, total cholesterol; TPR, total peripheral resistance; VLDL, very low-density lipoprotein; VT, ventilatory threshold; W_{max}, maximum workload; WR, work rate.