Table S1: Dyspnoea, rate of perceived exertion (RPE) scores and oxygen saturation during training

	Treadmill training			Cycle training		
	Oxygen Group Mean (SD)	Air Group Mean (SD)	Mean diff (95%CI)	Oxygen Group Mean (SD)	Air Group Mean (SD)	Mean diff (95%CI)
Dyspnoea	3.2 (1.1)	3.7 (1.3)	0.58 (0.10 to 1.07)	3.4 (1.1)	3.5 (0.9)	0.09 (-0.23 to 0.51)
RPE	3.1 (1.1)	3.9 (1.2)	0.81 (0.34 to 1.28)	3.5 (1.1)	4.0 (1.0)	0.48 (0.07 to 0.89)

Data are the mean (SD) of each training session for all participants in the Oxygen or air Group. Statistical analysis used linear mixed model to calculate the mean difference and 95%CI. RPE: rate of perceived exertion.

Table S2: Spirometry at baseline, end-training and 6-month follow-up for combined Oxygen and Air groups

FEV$_1$, litres			FVC, litres		
Baseline	**End-training**	**6-month**	**Baseline**	**End-training**	**6-month**
1.07 (0.41)	1.11 (0.43)	1.09 (0.43)	2.57 (0.83	2.62 (0.84)	2.58 (0.78)

Data are mean (SD). FEV$_1$: forced expiratory volume in one second; FVC: forced vital capacity

TABLE S3: Participant characteristics of participants attending a minimum of 16 training sessions and those who did not attend at least 16 training sessions.

Variable	Oxygen Group $n = 48$	Air Group $n = 41$	Oxygen Group $n = 4$	Air Group $n = 4$
	Attended ≥ 16 sessions		Attended < 16 sessions	
Age, years	70 (6)	69 (7)[#]	69 (10)	77 (5)
Gender, male/female	26/22	23/18	0/4	3/1
BMI, kg/m^2	27 (6)	30 (6)	25 (10)	25 (7)
Current smokers, n (%)	2 (4)	4 (10)	0 (0)	0 (0)
Pulmonary function				
FEV$_1$, L	1.2 (0.4)	1.2 (0.5)	1.1 (0.3)	1.2 (0.6)
FEV$_1$, % predicted	47 (17)	45 (17)	54 (28)	48 (20)
FVC, L	3.0 (1.0)	3.0 (0.9)	2.2 (0.4)	2.9 (1.3)
FVC, % predicted	84 (18)	79 (15)	85 (28)	81 (28)
FEV$_1$/FVC, %	42 (12)	43 (15)	47 (7)	44 (18)
RV/TLC, %	55 (10)	54 (11)	51 (9)	57 (9)
D_LCO, % predicted	49 (17)	48 (15)	32 (1)	58 (9)
6 min walk distance, m	408 (111)	402 (96)	314 (87)	343 (37)
SpO$_2$ nadir, (%)	85 (3)	85 (4)	82 (2)	85 (4)

#Significant difference in Air Group between those who attended ≥ 16 sessions and those who attended < 16 sessions
BMI: body mass index; D_L,CO: single breath diffusing capacity for carbon monoxide; FEV$_1$: forced expiratory volume in 1second; FVC: forced vital capacity; kg: kilograms; kg/m^2: kilograms per meter squared; L: litre; m: metres; n: number; %: percent RV: residual volume; SpO$_2$: oxygen saturation; TLC: total lung capacity.

TABLE S4: Exercise capacity, health-related quality of life, Dyspnea-12 and physical activity data at baseline, end-training and 6-month follow-up for participants who attended ≥ 16 sessions

		Baseline		End-training		6-month	
		Oxygen Group	**Air Group**	**Oxygen Group**	**Air Group**	**Oxygen Group**	**Air Group**
ESWT	n	48	41	48	41	37	34
	Time, s	348 (202)	308 (126)	497 (354)	466 (314)	426 (310)	405 (211)
	Dypsnoea isotime, score	4.3 (1.8)	4.8 (1.8)	3.3 (1.7)	3.8 (1.7)		
	RPE isotime, score	3.8 (2.1)	4.5 (2.2)	2.7 (1.9)	3.2 (2.1)		
ISWT	n	48	41	47	41	38	34
	Distance, m	296 (125)	280 (119)	331 (128)	310 (135)	336 (138)	303 (142)
	Dyspnoea isotime	3.3 (1.5)	3.6 (1.6)	2.5 (1.5)	3.2 (1.4)		
CRQ	n	48	41	48	41	40	34
	Total, ppi	4.3 (0.8)	4.1 (1.0)	4.8 (0.8)	4.6 (0.9)	4.7 (0.9)	4.6 (1.0)
	Dyspnoea, ppi	3.2 (1.0)	2.8 (1.0)	4.0 (1.1)	3.5 (1.2)	3.8 (1.3)	3.5 (1.3)
	Fatigue, ppi	3.9 (0.9)	3.6 (1.2)	4.6 (1.0)	4.3 (1.2)	4.3 (1.2)	4.2 (1.2)
	Emotional Funct, ppi	4.8 (1.0)	4.8 (1.2)	5.3 (1.1)	5.1 (1.2)	5.1 (1.2)	5.2 (1.1)
	Mastery, ppi	5.1 (1.2)	5.0 (1.4)	5.5 (1.2)	5.4 (1.2)	5.6 (1.0)	5.2 (1.3)
Dyspnoea-12	n	48	41	48	41	40	34
	Total, score	15 (9)	17 (9)	13 (8)	17 (9)	14 (9)	17 (8)
	Physical, score	10 (6)	12 (6)	9 (5)	11 (5)	10 (5)	12 (5)
	Affective, score	5 (4)	5 (5)	4 (4)	5 (5)	5 (4)	5 (5)
Physical activity	n	47	37	45	36	34	28
	Steps per day, n	3131 (2106)	3301 (2417)	3279 (2226)	3028 (2025)	3297 (2168)	3766 (2931)
	Total EE/day, kcal	2080 (395)	2217 (422)	2061 (404)	2248 (434)	2099 (404)	2212 (555)
	Sedentary, min/day	735 (163)	791 (153)	749 (164)	775 (178)	737 (162)	767 (159)
	Light: min/day	214 (126)	172 (87)	181 (100)	159 (87)	203 (125)	188 (95)
	Moderate: min/day	24 (30)	26 (33)	27 (32)	26 (34)	25 (28)	28 (33)
	Vigorous: min/day	3 (8)	2 (5)	2 (4)	3 (9)	2 (4)	1 (3)

Data presented as mean (SD). CRQ: chronic respiratory disease questionnaire; ESWT: endurance shuttle walk test; Isotime: comparison of isotime score at baseline and end training; ISWT: incremental shuttle walk test; METs: metabolic equivalents; min:minutes; RPE: rate of exertion;

Sedentary:Awake time spent METs <1.5; Light Activity: Time spent METs 1.5 to <3; Moderate Activity: Time spent METs 3 to <6; Vigorous Activity: Time spent METs ≥6; min/day: minutes per day.

Table S5: Within-group and between-group statistical analyses for participants who attended ≥ 16 sessions

		Within-group differences from baseline (95% CI)				Between-group differences	
		Oxygen Group		Air Group		Oxygen - Air	
		End-training	6-month	End-training	6-month	End-training	6-month
ESWT	Time, seconds	152 (69 to 234)*	72 (-20 to 163)	153 (64 to 243)*	76 (-20 to 172)	-2 (-124 to 120)	-5 (-138 to 129)
	Dyspnoea isotime, score	-1.2 (-1.7 to -0.4)		-0.9 (-1.4 to -0.4)		-0.3 (-1.0 to 0.3)	
	RPE isotime, score	-1.3 (-1.8 to -0.7)*		-1.1 (-1.7 to -0.5)*		-0.2 (-0.9 to 0.6)	
ISWT	Distance, metres	32 (19 to 46)*	23 (9 to 38)*	30 (16 to 44)*	10 (-5 to 25)	2 (-18 to 22)	13 (-8 to 34)
	Dyspnoea isotime, score	-0.9 (-1.3 to -0.5)*		-0.3 (-0.7 to 0.1)		-0.6 (-1.2 to -0.0)#	
CRQ	Total, ppi	0.6 (0.4 to 0.8)*	0.4 (0.2 to 0.6)*	0.5 (0.2 to 0.7)*	0.4 (0.2 to 0.7)*	0.1 (-0.2 to 0.4)	-0.0 (-0.4 to 0.3)
	Dyspnoea, ppi	0.8 (0.5 to 1.1)*	0.7 (0.4 to 1.0)*	0.6 (0.3 to 0.9)*	0.6 (0.3 to 1.0)*	0.2 (-0.2 to 0.6)	0.0 (-0.4 to 0.5)
	Fatigue, ppi	0.7 (0.4 to 1.0)*	0.5 (0.1 to 0.8)*	0.6 (0.3 to 1.0)*	0.4 (0.1 to 0.7)*	0.1 (-0.4 to 0.5)	0.0 (-0.4 to 0.5)
	Emotional Funct, ppi	0.5 (0.2 to 0.7)*	0.3 (0.0 to 0.5)*	0.3 (-0.0 to 0.5)	0.3 (0.0 to 0.6)*	0.2 (-0.2 to 0.6)	-0.1 (-0.5 to 0.3)
	Mastery, ppi	0.4 (0.1 to 0.6)*	0.4 (0.1 to 0.7)*	0.4 (0.1 to 0.6)*	0.1 (-0.2 to 0.4)	0.0 (-0.4 to 0.4)	0.2 (-0.2 to 0.7)
Dyspnea-12	Total, score	-2.4 (-4.1 to -0.6)*	-0.8 (-2.7 to 1.1)	0.1 (-1.8 to 2.0)	0.5 (-1.5 to 2.6)	-2.5 (-5.1 to 0.1)	-1.3 (-4.1 to 1.4)
	Physical, score	-1.6 (-2.7 to -0.4)*	-0.6 (-1.8 to 0.7)	-0.1 (-1.4 to 1.1)	0.9 (-0.5 to 2.2)	-1.5 (-3.2 to 0.3)	-1.4 (-3.3 to 0.4)
	Affective, score	-0.9 (-1.8 to 0.0)	-0.3 (-1.2 to 0.7)	0.3 (-0.7 to 1.3)	-0.3 (-1.3 to 0.8)	-1.2 (-2.5 to 0.1)	-0.0 (-1.4 to 1.4)
Phys Activity	Steps per day, n	79 (-263 to 422)	158 (-229 to 544)	-266 (-650 to 117)	345 (-87 to 777)	346 (-169 to 860)	-188 (-768 to 392)
	Total EE/day, kcal	-37 (-116 to 42)	-53 (-141 to 36)	25 (-63 to 113)	-55 (-155 to 45)	-63 (-181 to 56)	3 (-131 to 137)
	Sedentary, m/day	6 (-26 to 37)	5 (-30 to 40)	-6 (-41 to 29)	-5 (-44 to 34)	12 (-36 to 59)	10 (-42 to 63)
	Light: m/day	-27 (-48 to 7)	-2 (-25 to 21)	-23 (-46 to -1)	3 (-23 to 28)	-4 (-35 to 27)	-5 (-39 to 30)
	Moderate: m/day	3 (-3 to 8)	-3 (-10 to 3)	-0 (-7 to 6)	-2 (-9 to 6)	3 (-6 to 11)	-1 (-11 to 8)
	Vigorous: m/day	-1 (-2 to 0)	-1 (-3 to -0)	0 (-1 to 2)	-0 (-2 to 1)	-1 (-3 to 1)	-1 (-3 to 1)

Data presented as mean and 95% CIs adjusted for baseline values. *significant within group difference from baseline # significant between group difference.
CRQ: chronic respiratory disease questionnaire; EE: energy expenditure; ESWT: endurance shuttle walk test; Funct: Function; ISWT: incremental shuttle walk test; Isotime: comparison of isotime scores at baseline and end training; METs: metabolic equivalents; m/day: minutes per day; n: number; Phys: physical; RPE: rate of perceived exertion; Sedentary: awake time spent METs <1.5; Light Activity: time spent METs 1.5 to <3; Moderate Activity: Time spent METs 3 to <6; Vigorous Activity: time spent METs ≥6.

Data presented as mean and 95% CIs adjusted for baseline values. *significant within group difference from baseline # significant between group difference . CRQ: chronic respiratory disease questionnaire; EE: energy expenditure; ESWT: endurance shuttle walk test; ISWT: incremental shuttle walk test; Isotime: comparison of isotime scores at baseline and end training; METs: metabolic equivalents; m/day: minutes per day; n: number; Phys: physical; RPE: rate of perceived exertion; Sedentary:awake time spent METs <1.5; Light Activity: time spent METs 1.5 to <3; Moderate Activity: Time spent METs 3 to <6; Vigorous Activity: time spent METs ≥6;