Conclusion Patients with a higher baseline exacerbation rate were more likely to receive ICS- containing therapies compared to those taking bronchodilators alone. Across all maintenance therapy groups, GP visits and non-COPD related hospitalisations were the primary driver of total costs.

Pulmonary rehabilitation and physical activity

P133 A MULTIDISCIPLINARY PATIENT EDUCATION PROGRAMME SIGNIFICANTLY IMPROVES ASTHMA CONTROL AND QUALITY OF LIFE IN PATIENTS WITH SEVERE ASTHMA

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Background The impact of severe asthma upon quality of life is significant, as a consequence of unpredictable hospitalisations and life-threatening attacks. It is unknown whether patient education programmes in severe asthma improve self-management, quality of life or measures of asthma control.

A 12 week patient education programme was piloted within a severe asthma multi-disciplinary team. Sessions were 2 h duration fortnightly. The aim of the programme was to enable patients to gain greater insight into their disease, treatment options and lifestyle management with emphasis on improving asthma control and quality of life.

Aims Our aim was to assess the effect of the introduction of this programme upon participant's asthma control and quality of life.

Methods Prospective data collection was performed, including Asthma Quality of Life Questionnaire (AQLQ), Asthma Control Questionnaire (ACQ) and Hospital Anxiety and Depression (HAD) at week 1 and 12. Patient Satisfaction Evaluation forms were completed to facilitate ongoing programme development.

Results 21 patients entered with 16 (76%) completing the 12 week programme (12 female, 4 male). Dropout was attributed to difficulty attending on a regular basis. There was an improvement in mean total AQLQ of 1.3 (minimal clinically important difference >0.5). There was notable improvement in the AQLQ domains; symptoms (0.8) and emotional (0.7). Mean ACQ improved by 0.7 ($p < 0.05$), mean HAD anxiety and depression scores fell but this did not reach statistical significance (Table 1).

Conclusion A multidisciplinary patient education group for severe asthma patients significantly improves quality of life and asthma control. Longitudinal studies are required to determine impact upon exacerbations and hospitalisations.

P134 EXERCISE RESPONSES TO ONE-LEGGED CYCLING IN PATIENTS WITH IDIOPATHIC PULMONARY FIBROSIS

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Introduction Pulmonary Rehabilitation is recommended for patients with Idiopathic Pulmonary Fibrosis (IPF) although the magnitude of benefit appears less compared to those with other chronic lung diseases. Patients with IPF may not be able to sustain high-intensity training to induce physiological change due to a ventilatory limitation to exercise. One strategy to circumvent this in COPD has been to reduce the exercising muscle mass by cycling one leg at a time during the same exercise session. Randomised controlled trials have shown greater improvements in exercise capacity after training using one-legged cycling (OLC) compared to two-legged cycling (TLC).[1,2] We, therefore, compared OLC to TLC responses during incremental and constant work rate (CWR) exercise in patients with IPF.

Methods Patients were recruited from a tertiary referral centre if they met the current NICE diagnostic criteria for IPF with a MRC dyspnoea grade $\geq$2. Exclusion criteria included a requirement for long-term oxygen therapy. Participants completed four Cardiopulmonary Exercise Tests (CPETs) to intolerance on a cycle ergometer with expired gas analysis. The tests were completed on separate days: 1) two-legged maximal incremental test (TLC-ICE); 2) one-legged maximal incremental test (OLC-ICE); 3) two-legged CWR (TLC-CWR) test at 70% peak power achieved on the TLC-ICE; 4) one-legged CWR (OLC-CWR) test at 35% TLC-ICE peak power.

Results Twelve participants (11 male, mean [SD] 73 [8] yrs, BMI 30.6 [4.8] kg/m^2, FVC% predicted 71.8 [20.3]%, resting SpO_2 98 [1]%) completed all four CPETs demonstrating a ventilatory limitation to exercise (92 [14]% maximum voluntary ventilation [MVV]). Although the OLC-ICE peak oxygen uptake (peak VO-$_2$) was significantly lower than the peak VO_2 TLC-ICE ($p < 0.001$) the OLC: TLC was high at 0.85. The OLC-CWR was endured for more than twice the TLC-CWR ($p < 0.001$) at the same muscle-specific power leading to almost double the work being performed (Table 1).

Abstract P133 Table 1

	AQLQ Total (mean)	AQLQ Symptoms (mean)	AQLQ Activity (mean)	AQLQ Emotional (mean)	AQLQ Enviro (mean)	ACQ 6 (mean)	HAD Anxiety (mean)	HAD Depression (mean)
Week 1	2.6	2.7	2.6	2.9	3.08	3.9	9.6	9.1
Week 12	3.9	3.5	3.1	3.6	3.22	3.2	8.5	7.5
Change from Baseline	↑1.3	↑0.8	↑0.5	↑0.7	↑0.1	↓ 0.7-	↓1.1	↓1.6
p value	p = 0.06	p = 0.04	p = 0.1	p = 0.07	p = 0.3	p = 0.05	p = 0.27	p = 0.18

The patient evaluation forms demonstrated significant patient satisfaction with the programme, highlighting the positive impact that the sessions have had had upon their life.

Abstract P134 Table 1 A comparison between Two-Legged (TLC) vs. One Legged (OLC) Constant Work Rate (CWR) exercise tests

Peak values	TLC-CWR	OLC-CWR	*p*
Duration, min	6.1 (3.7)	22.7 (15.0)	0.001
Power, W	68.5 (24.3)	34.3 (12.2)	<0.001
Work, kJ	26.7 (20.6)	53.4 (48.3)	0.02
VE Peak, L/min	70.0 (23.0)	61.6 (28.1)	0.03
HR, beats/min	118 (20)	108 (20)	0.04
Borg Score, Dyspnoea *	6 (2)	5 (3)	0.13
Borg Score, Leg Effort *	15(3)	17 (4)	0.02
SpO_2%	87 (7)	89 (6)	0.03

Mean SD,* = median IQR, SpO_2 = oxygen saturation by pulse oximetry.

Conclusion OLC at the same muscle-specific power compared to TLC enabled patients with IPF to achieve almost double the work in a simulated exercise training session. Future research should investigate OLC as a potentially efficacious aerobic training strategy for patients with IPF.

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P135 PHYSICAL ACTIVITY PROFILE OF PATIENTS WITH COPD DURING AN EXERCISE CLASS: WHAT ARE PATIENTS ACTUALLY DOING EARLY IN THE REHABILITATION COURSE?

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Introduction and objectives Pulmonary rehabilitation (PR) is recommended by the British Thoracic Society for patients that suffer from COPD; it is typically delivered in supervised sessions. Daily physical activity (PA) is often recorded as an outcome following PR, with variable results. National guidelines recommend that older adults should accumulate 150 min of moderate intensity activity in bouts of 10 min or more. We wanted to objectively measure the amount and intensity of PA, which patients actually accumulate during 1 PR session. This is the first study to profile PA during a PR exercise class in this way and could be useful for home training and general PA advice.

Methods We conducted a prospective study on patients diagnosed with COPD that were enrolled for PR at Glenfield Hospital, Leicester. 12 PR sessions include walking [85% speed derived from the incremental shuttle walk test (ISWT)], leg/arm bike, and resistance training. We placed Sense-Wear™ monitors (SWM) on the patients' arm during session 2 only. Analysis took place on Innerview™ computer software.

Results The patient cohort consisted of 20 patients: 60% female, mean age of 70.1 years (SD – 8.3 years), BMI 28.6 (SD 7.9), FEV_1/FVC ratio 60.8 (SD 17.3). 90% of the patients were either smokers or ex-smokers. The baseline ISWT of the group was 199.5 (SD 145.0) metres.

Table 1 shows that in our cohort, patients were exercising in the 0–1.5 METs range for 52% of the time (sedentary activity), 1.5–3 METs – 31% of the time (light activity) and for 17% of the time, they were exercising above 3 METs (moderate activity).

Abstract P135 Table 1

	Mean	Std. Deviation
On Body Time (mins)	42.3	7.4
Total Energy Expenditure (cals)	96.0	30.1
Steps	653.8	539.1
Average METS	1.9	0.4
–1.5 MET time (mins)	22.3	9.0
1.5–3 MET time (mins)	12.9	6.6
>3 MET time (mins)	7.1	5.9

Conclusion The results highlight that, early in the PR programme COPD patients were not achieving 10 min of moderate intensity activity during 1 PR session, as recommended in national guidance. However, documented inaccuracies of the SWM, for instance at slow speeds of walking and when the arm is fixed may account for these results. Future work should aim to discover if the time spent above 3 METS increases later in the programme. In addition, we could use the PA profile of each patient to tailor home and class training progression.

P136 DO STRUCTURED EXERCISE CLASSES FOR INPATIENTS WITH COPD INCREASE COMMUNITY PULMONARY REHABILITATION (PR) REFERRAL AND COMPLETION RATES?

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Introduction NICE recommends community PR as an essential component of chronic obstructive pulmonary disease (COPD) management,[1] although nationally mean uptake is only 15%.[2] PR has been proven to improve quality of life and to be cost effective.[1] Our team routinely assess and refer COPD inpatients to PR, however, many decline referral. We piloted an inpatient exercise class with the objective of increasing referrals to PR and explored the reasons patients declined referral.

Methods Patients admitted with an acute exacerbation of COPD (June–November 2014) were given the opportunity to attend a Physiotherapy-led exercise class twice weekly. Baseline referral and completion rates to PR were calculated over two separate months during 2013–2014 and comparisons made with rates for the class attendees.

Results Baseline referral rate to PR was calculated at 25%. 50 patients were offered in-patient exercise during the study; 30 agreed (60%). PR referral rate for patients who attended the in-patient class was 57% compared with 40% of those who did not. Baseline PR completion rate was 15%. In those exposed to in-patient exercise, completion rose to 18%. In the group declining inpatient exercise only 13% completed PR. The reasons for declining subsequent referral to PR are outlined in Figure 1.