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## Introduction

COPD patients may develop severe hypoxemia during air travel [1]. To make air travel safer for passengers with COPD, it is important to identify this group of patients. However, pre-flight testing in order to predict in-flight PaO<sub>2</sub> is expensive, time consuming and not widely available. Before establishing testing facilities like hypoxia altitude simulation test (HAST), it seems important to study air travel habits and subject characteristics in patients with COPD.

During recent years, few studies have addressed this issue among patients with COPD [2,3].

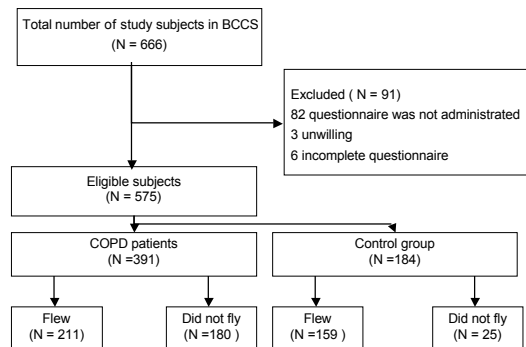
## Aims

To determine air travel habits and subject characteristics in patients with COPD, compared to a group of individuals without COPD.

## Methods

- A cross-sectional study of COPD patients compared with controls. Participants were recruited from Bergen COPD Cohort Study (BCCS).
- The study subjects completed a questionnaire on air travel habits and possible symptoms during air travel in the previous two years. Lung function measurements, blood gas analysis, and a six-minute walk test (6MWT) were performed. Score on the MRC Dyspnea scale was registered.
- None of the COPD patients had performed a pre-flight HAST.

## Subject selection



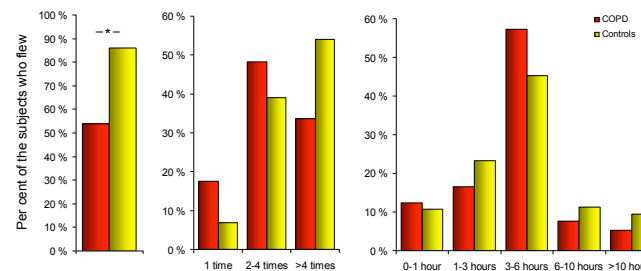
## Results

### Subject characteristics

	COPD patients n=391			Control group n=184	
	Flew n=211	Did not fly n=180	p <sup>1)</sup>	Flew n=159	p <sup>2)</sup>
Gender, M/F	124/87	113/67	0.419	80/79	0.106
Age, yrs	61.9 (6.7)	63.9 (6.7)	<0.01	53.6 (8.6)	<0.001
Smoking habits			0.806		<0.001
Never/ Former	121 (57.3)	101 (56.1)		37 (27.7)	
Current	90 (42.7)	79 (43.9)		115 (72.3)	
FEV <sub>1</sub> %pred, %	55.6 (13.5)	49.3 (16.3)	<0.01	110.1 (9.7)	<0.001
DLCO, m mol/min/kPa	5.5 (1.9)	4.8 (1.8)	0.002	8.0 (1.7)	<0.001
RV/TLC, %	43.1 (9.2)	47.8 (11.0)	<0.001	27.6 (6.8)	<0.001
PaO <sub>2</sub> , kPa	9.5 (1.0)	9.1 (1.3)	<0.001	10.8 (1.2)	<0.001
SpO <sub>2</sub> , %	95.5 (2.3)	94.3 (3.0)	<0.001	97.5 (1.2)	<0.001
Six-minute walk test					
Distance, m	459 (99)	401 (106)	<0.001	-	-
End SpO <sub>2</sub> , %	92.0 (4.7)	89.9 (6.6)	<0.001	-	-
Dyspnea, Borg CR10	3.7 (2.7)	4.7 (3.2)	0.002	-	-
MRC Dyspnea scale			<0.001		<0.001
Stage 0 and 1	122 (62.9)	66 (44.6)			
Stage 2 to 4	72 (37.1)	82 (55.4)			

Data are presented as n (%) or mean (SD). MRC: Medical Research Council. p<sup>1)</sup> = between COPD patients who flew and did not fly; p<sup>2)</sup> = between COPD patients who flew and controls who flew.

### Frequency and duration of flights



### Frequency and duration of flights

- 54% of the COPD patients travelled by air during the two year study period, vs 86% of the control group (p<0.001).
- 48% of the COPD patients flew 2-4 times.
- The most frequent flight duration for the COPD patients was 3-6 hours.
- The COPD patients travelled less frequently by air than the control group (median number 2-4 flights vs more than 4 flights, respectively, p<0.001).

### Reasons for not flying

- 9% did not dare to fly due to their lung disease, and 3% were advised against air travel by their physician.
- 79% of the COPD patients who did not fly, said that they had no reason to travel by air during the study period, and 9% stated other reasons (general fear of flying, economy, and allergy to perfume).

### Pre-flight evaluation

- 41% of the COPD patients fulfilled the criteria for advanced pre-flight evaluation, according to Aerospace Medical Association guidelines [4], and 23% according to the BTS guidelines [5].
- Only 6% of the COPD patients consulted a physician before attending to air travel.

## Conclusion

- During a two year interval, 54% of the COPD patients travelled by air. Of these, 82% travelled more than two times.
- Those who flew were younger, had higher FEV<sub>1</sub>%pred and PaO<sub>2</sub>, longer walking distance and less desaturation during a 6MWT than those who did not fly. They also scored lower on the MRC Dyspnea scale.

## References

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