

## THE ACUTE EFFECTS OF OXYGEN THERAPY ON COGNITIVE AND DRIVING PERFORMANCE IN HYPOXAEMIC COPD

Jeffrey J Pretto, Christine F McDonald

*Department of Respiratory & Sleep Medicine, Austin Health and Institute for Breathing and Sleep, Heidelberg, Victoria 3084.*

It has long been recognized that cognitive and neuropsychological function is adversely affected by low blood oxygen levels. Current Australian guidelines<sup>1</sup> recommend that individuals requiring long-term oxygen therapy should *probably* use oxygen whilst driving, however there is little evidence to support this recommendation. This is a preliminary report investigating whether acute intranasal oxygen therapy improves cognitive and driving performance as assessed using computer-based simulation. **Methods:** Fifteen hypoxaemic subjects with COPD and current driver's licences performed a 20 minute computer-based driving simulation task (AusEd) and 10 minute psychomotor vigilance task (PVT) at baseline, and whilst breathing intranasal oxygen and intranasal air in a randomized, double-blinded, crossover manner. Paired comparisons (Wilcoxon) were made between air and oxygen data with  $p < 0.05$  considered significant. **Results:** Mean PaO<sub>2</sub> was 51 mmHg on air and 71 mmHg on oxygen. The table shows key driving and PVT results whilst breathing intranasal air and oxygen, expressed as medians and interquartile ranges. There were no statistically significant differences in any performance measures.

	Driving Simulation			PVT	
	Lane Variation	Speed Variation	Crashes	Reaction Time	Lapses
Air	86 (55)	11.3 (6.9)	4.0 (6.0)	251 (23)	5.5 (13)
O <sub>2</sub>	84 (66)	9.5 (8.5)	3.0 (6.5)	248 (40)	8.5 (17)

**Conclusion:** Acute oxygen therapy does not improve simulated driving performance or neurocognitive function as assessed by PVT in hypoxaemic COPD. These data do not support the recommendation that oxygen should be used whilst driving in this patient group.

1. Assessing fitness to drive. Austroads; 2003.

This study was supported by the Victorian Tuberculosis and Lung Association.

**Keywords:** Hypoxaemia, driving performance, COPD