

Exhaled nitric oxide, lung function and exposure to hypoxia and hyperoxia

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Introduction

- Diving and hyperbaric oxygen therapy is associated with the risk of pulmonary oxygen toxicity
- Oxygen toxicity contributes to the acute and long-term effects of diving on lung function



Introduction

○ **Acute effects:**

- ↓ Diffusion capacity
- ↓ Max expiratory flow rates
- ↓ FEV₁
- ↓ Vital capacity

○ **Long -term effects:**

- ↓ Lung function – obstructive pattern



Introduction

- Nitric oxide:
 - Inflammatory marker
 - Vasodilator in the circulatory system
 - Signaling substance in the CNS

- FE_{NO} : Fraction of NO in exhaled gas
- PE_{NO} : Partial pressure of NO in exhaled gas



Introduction

- Changes in PE_{NO} at the alveolar level may have effects on:
 - Pulmonary blood flow
 - Gas exchange

Thereby contribute to reduction in diffusion capacity after a dive



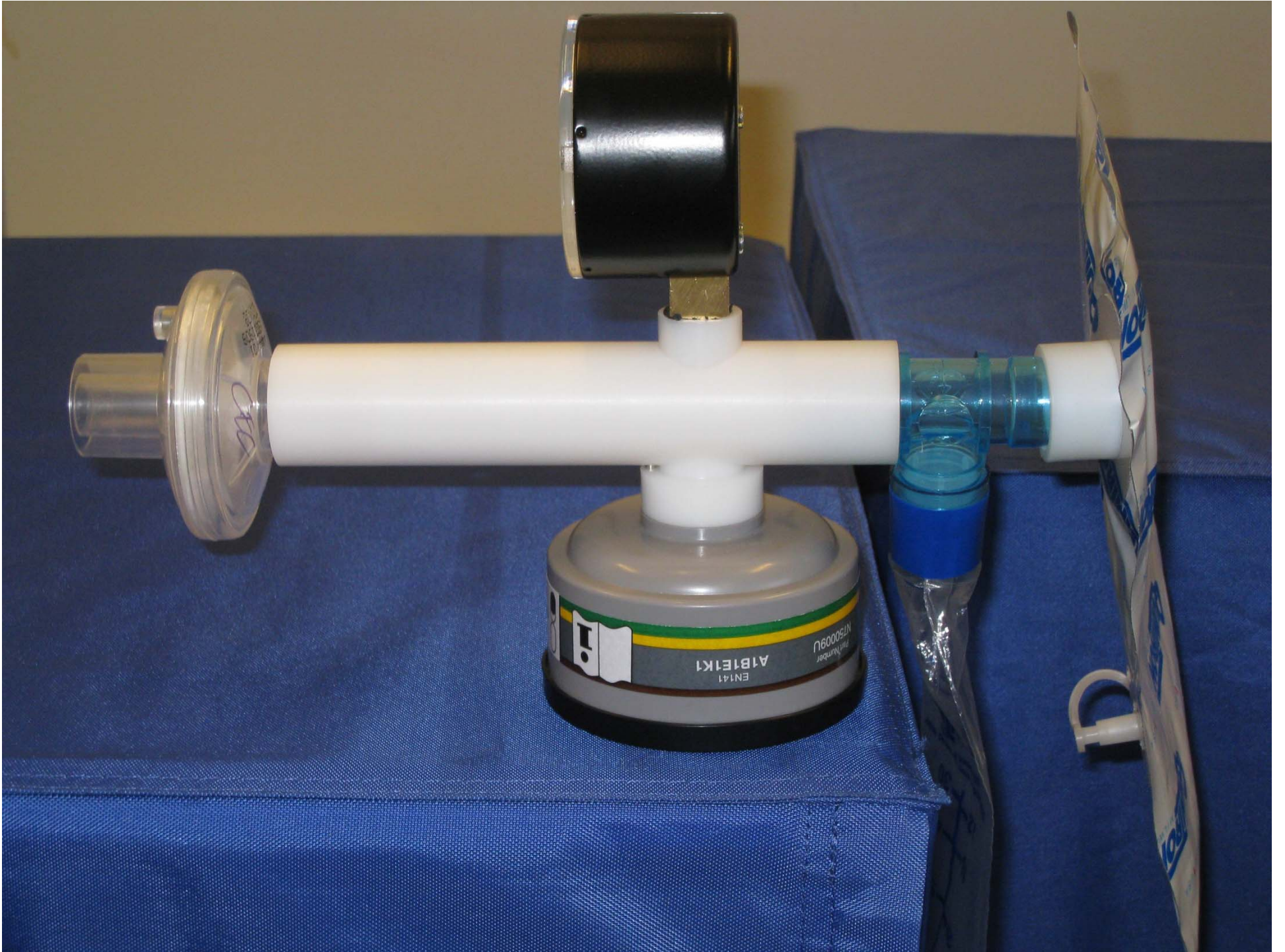
Aim

- Characterise the dose-response relationship between PO_2 and FE_{NO} and PE_{NO}
- Are changes in PE_{NO} associated with changes in pulmonary function?



Studies

1. The relationship between PO_2 and PE_{NO}
2. Alveolar and bronchial components of PE_{NO}
3. The relationship between PE_{NO} and diffusion capacity of the lungs





Visste du at ???

... kondisen din er redusert med 6-10% på 2000 meter over havet og 10-15% på 3000 m?

... kondisen til en toppidrettsutøver faller mer i høyden enn hos en utrent?

Forbedret ulykkesberedning
Helse og trykkløst miljø







Next

- Measure PE_{NO} :
 - At 4000m in an altitude chamber
 - Bronchial and alveolar components of PE_{NO} after hyperbaric hyperoxia