

European Respiratory Society Annual Congress 2013

Abstract Number: 3784

Publication Number: P1366

Abstract Group: 9.2. Physiotherapists

Keyword 1: Physiotherapy care **Keyword 2:** Inflammation **Keyword 3:** Lung function testing

Title: Acute effects of flutter breathing exercises on exhaled nitric oxide and airway resistance

Prof. A.C. 23264 Gastaldi ada@fmrp.usp.br , Dr. O. 23265 Usmani o.usmani@imperial.ac.uk MD , Prof. P.J. 23266 Barnes p.j.barnes@imperial.ac.uk MD and Dr. P. 23267 Paredi p.paredi@imperial.ac.uk MD .¹ Respiratory Medicine, Imperial College London, London, United Kingdom, SW3 6LY .

Body: The flutter valve is a physiotherapy device that produces oscillations and positive expiratory pressure that may help clear respiratory secretions. Its effects on airway resistance and inflammation are unknown. Objective: To evaluate the acute effects of breathing exercises with a flutter device on exhaled nitric oxide (FeNO), a marker of inflammation, and airway resistance as assessed by impulse oscillometry (IOS) in healthy subjects. Methods: 14 healthy subjects, mean age 39±9 years were enrolled in the study. Whole breath respiratory resistance at 5Hz (R5) and reactance (X5) were measured by impulse oscillometry (IOS, Jaeger, Wurzburg, Germany) and FeNO at the exhalation flow rate of 50 ml/s by chemiluminescence (Niox Flex, Aerocrine, Sweden). The measurements were performed at baseline, immediately following 30 minutes of flutter breathing (Varioraw SARL, Scandipharm Inc, Alabama, USA) and repeated using a control flutter-sham device that does not produce vibrations. Results: FeNO levels were significantly decreased after flutter breathing (26.2±21.9 and 23.5±20.6 ppb; p<0.05) and were not affected by the flutter-sham device (27.5±26.1 and 27.5±26.2 ppb). However, X5 (-0.11 ±0.07 and -0.12±0.10 kPa/L/s) and R5 (0.38±0.14 and 0.37±0.15 kPa/L/s) were unchanged. Conclusion: The use of a flutter device significantly decreases FeNO levels without affecting airway resistance. This may be due to improvement of the ventilation/perfusion, diffusion and clearance of NO. Further studies are required to investigate flutter breathing in patients with airway disease. Granted by FAPESP/Brazil.