

# European Respiratory Society Annual Congress 2013

**Abstract Number:** 7159

**Publication Number:** 5010

**Abstract Group:** 7.1. Paediatric Respiratory Physiology

**Keyword 1:** Asthma - diagnosis **Keyword 2:** Children **Keyword 3:** Exercise

**Title:** The agreement between inhaled mannitol airway challenge and exercise challenge in young children

Dr. Afaf 1059 Alblooshi afaf.alblooshi@uwa.edu.au MD <sup>1,2,3</sup>, Dr. Shannon 1060 Simpson shannons@ichr.uwa.edu.au <sup>2</sup>, Ms. Georgia 1061 Banton gbanton@ichr.uwa.edu.au <sup>2</sup>, Prof. Dr Stephen 1062 Stick Stephen.Stick@health.wa.gov.au MD <sup>1,2,3</sup> and Prof. Graham 1063 Hall grahamh@ichr.uwa.edu.au <sup>1,2,3</sup>. <sup>1</sup> School of Paediatric and Child Health, University of Western Australia, Perth, Western Australia, Australia, 6840 ; <sup>2</sup> Telethon Institute for Child Health Research, Centre for Child Health Research, University of Western Australia, Perth, Western Australia, Australia, 6840 and <sup>3</sup> Respiratory Medicine, Princess Margaret Hospital for Children, Perth, Western Australia, Australia, 6840 .

**Body:** Background: Inhaled mannitol and exercise challenge tests are used to assess exercise induced broncho-constriction in adults and school aged children. The forced oscillation technique (FOT) enables lung function and inhaled airway challenge tests in young children. There are limited reports of exercise challenge tests and no reports of mannitol challenge tests in young children with a history of exercise induced respiratory symptoms (EIS). Aims: To assess the agreement between mannitol and exercise challenge tests in young children using FOT. Methods: Healthy children and children with EIS were recruited. Children underwent a mannitol challenge and free running exercise challenge on 2 different visits 1-2 weeks apart. A positive responsiveness to the challenge tests was defined as wheeze on auscultation, persistent cough, SpO2 below 90% or increase in the respiratory resistance at 8 Hz (Rrs8) >50% from control inhalations. Results: To date 37 children with a mean (range) age of 6 (4–7) years were enrolled of which 28 children performed both challenge tests. None of the healthy children (n=8) responded to either challenges. Of the 20 children with EIS 13 (65%) responded to the mannitol challenge with 8 children (40%) responding to the exercise challenge. In the children with EIS 7 children responded to both challenges and 6 children did not respond to either challenge resulting concordant outcomes in 13 children (65%) with EIS and in 100% of healthy children. Conclusion: These data suggest a mannitol challenge test combined with FOT may aid in the diagnosis of exercise induced asthma in young children and may offer an alternative to an exercise challenge test.