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Title: Lung function in preschool children with recurrent wheezing

Dr. Marta 17299 Mumany 39769mme@comb.es MD [1,4], Dr. Olaia 17300 Sardon osardon@gmail.com MD [2,3], Prof. Dr Ines 17301 Mir fernandezdemir@gmail.com MD [1], Dr. Javier 17302 Korta osardon@gamil.com MD [2,3], Dr. Alba 17303 Torrent atorrentvernetta@hotmail.com MD [1], Dr. Paula 17309 Corcuera osardon@gamil.com MD [2,3], Dr. Silvia 17310 Gartner silviagartner@gmail.com MD [1], Prof. Dr Eduardo G. 17313 Pérez Yarza osardon@gmail.com MD [2,3] and Prof. Dr Antonio 17316 Moreno amorenogaldo@gmail.com MD [1]. [1] Pediatric Pulmonology Unit, Hospital Universitari Vall D'Hebron, Barcelona, Spain, 08035 ; [2] Pediatric Pulmonology Unit, Donostia University Hospital, San Sebastian, Guipuzcoa, Spain, 20080 ; [3] Deparment of Pediatrics, University of the Basque Country, UPV/EHU, San Sebastian, Guipuzcoa, Spain, 20080 and [4] Pediatric Pulmonology Unit, Hospital De Terrassa (CST), Terrassa, Barcelona, Spain, 08227 .

Body: Introduction: Measurement of specific resistance could be more sensible than spirometry to quantify early functional changes in airway of preschool children. Objective: To assess lung function abnormalities among preschool children with recurrent wheezing using spirometry and specific resistance (sRaw). Methods: Observational prospective study.Children aged 3 to 6 years with a history of recurrent wheezing and healthy children were recruited. Children were classified according to wheeze phenotype (ERS Task Force 2008).sRaw was measured using sReff by a single step procedure.Z-scores were calculated from the equations from Asthma UK initiative (Eur Respir J 2010) and GLI (Quanjer,Eur Respir J 2012).Bronchodilator response was assessed as the increase in $FEV_{0.75}$ or decrease in Reff. Results: Twenty-five healthy controls,mean age 4.98 (SD 1.06) years and 92 wheezers 5.06 (1.02) years were tested. 37 patients showed a multiple-trigger wheeze phenotype.Sixty wheezing children and 19 healthy performed technically acceptable spirometry manoeuvres and 77 wheezing and 20 healthy satisfactory sRaw measurements.^

	FVC	FEV0.75	FEV0.75/FVC	FEF25-75	sReff
Healthy, z-score; mean (SD)	0.27 (0.83)	0.34 (0.96)	-0.08 (0.84)	0.24 (0.92)	0.51 (0.95)
Wheezing, z-score; mean (SD)	0.10 (1.14)	-0.47 (1.21)	-0.77 (1.04)	-0.78 (0.98)	0.75 (1.27)
P	0.49	0.005	0.007	< 0.001	0.43

There was no difference in bronchodilator response between groups neither using $FEV_{0.75}$ increase: healthy versus wheezing, nor Reff decrease.No difference was found among spirometric and resistance index between multiple-trigger and episodic wheeze. Conclusions: Spirometric indices are more sensible than specific resistance measurement to detect abnormalities in lung function in wheezing preschool children.