

CHANGES IN PHYSICAL CHARACTERISTICS AND SPIROMETRY OF AUSTRALIAN CHILDREN OVER THE PERIOD OF 10 YEARS. TWO BELMONT COHORTS

E Belousova, W Xuan, B Toelle, K Ng, G Marks

Woolcock Institute of Medical Research, NSW, Australia

Aim: To examine whether height, weight and body mass index (BMI) of Australian children have changed over the last decade and how these changes affected spirometric values, such as FVC and FEV₁. **Design:** Two cross-sectional studies of children conducted in Belmont, NSW, in 1992 and 2002. **Subjects:** Children aged 8-11 years: 914 in 1992 (response rate 82.7%) and 503 in 2002 (response rate 50.8%). **Methods:** Spirometry was recorded by dry rolling seal spirometers (Mijnhardt BV, Bunnik, Holland) with electronic data capture. "Normal" subjects were defined as those who had not wheezed in the last 12 months and who had not used asthma medicines in the last month. The effect of year of study on height, weight, BMI, FVC and FEV₁ was examined in multiple linear regression analyses. **Results** After adjustment for gender and age, height increased by 0.6 cm on average from 1992 to 2002 (p=0.0776), weight by 1.65 kg (p=0.0001) and BMI by 0.65 kg/m² (p=0.0001). The FVC and FEV₁ values increased significantly since 1992:

	Changes in FVC (ml) (2002 – 1992)		Changes in FEV ₁ (ml) (2002 – 1992)	
	All subjects (N=1384)	"Normal" (N=949)	All subjects (N=1384)	"Normal" (N=949)
Unadjusted	130 (91 – 169)	110 (63 – 157)	91 (57 – 125)	77 (38 – 116)
Adj for gender and height	79 (55 – 104)	75 (48 – 102)	45 (23 – 67)	46 (21 – 71)
Adj for gender, height and weight	69 (45-93)	67 (33 – 87)	38 (16 – 60)	40 (15 – 65)

Both height and weight were independent predictors of lung function in 1992 and 2002. The analyses of weight's quintiles showed that the relation between weight and lung function was positive and linear. The examination of interaction terms showed that the relation between height or weight and lung function did not change over the last 10 years. **Conclusions:** Australian children are becoming heavier, with increasing BMI, but not taller. The increase in lung function over the last decade can be explained only partially by increase in weight.

Supported by: Astma Foundation of NSW, NH&MRC, Allen+Hanburys

Key words: children, lung function.