

# Normal lung function in Angolan children

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## BACKGROUND

There are no data about normal lung function in Angolan children.

The *Global Lung Initiative 2012* (GLI-2012; Quanjer et al. *Eur Respir J* 2012;40:1324–1343) established new multi-ethnic reference values for spirometry for all-age healthy people. The prediction equations for black people were derived from African Americans.

## AIMS

Evaluate whether the GLI-2012 prediction equations for black people fit Angolan children.

## METHODS

362 children (50.2% boys) aged 6-12 years from public and private schools in Luanda, Angola, were initially recruited. 55 subjects were excluded because they had chronic or acute disease or were not able to perform a repeatable flow-volume loop of normal shape.

FEV<sub>1</sub>, FVC, FEV<sub>1</sub>/FVC of 307 healthy children (50.2% boys) were evaluated. A portable spirometer (Pony FX©, Cosmed, IT) was used. Height and weight were recorded. Z-scores for spirometric data were derived from GLI-2012 equations for African Americans, z-scores for BMI and height were calculated according to CDC 2000 growth charts. Height was also compared to that in African Americans from NHANES III.



## RESULTS

Mean age was 9.8 years (SD 1.9). Z-scores (table 1) fell within the 90% reference interval for black people (figure 1).

25.8% of children were underweight (zBMI <-2), and 7.8% had stunted growth (zHeight <-2). African American girls were 3.4%, boys 4.3% taller than the Angolan ones.

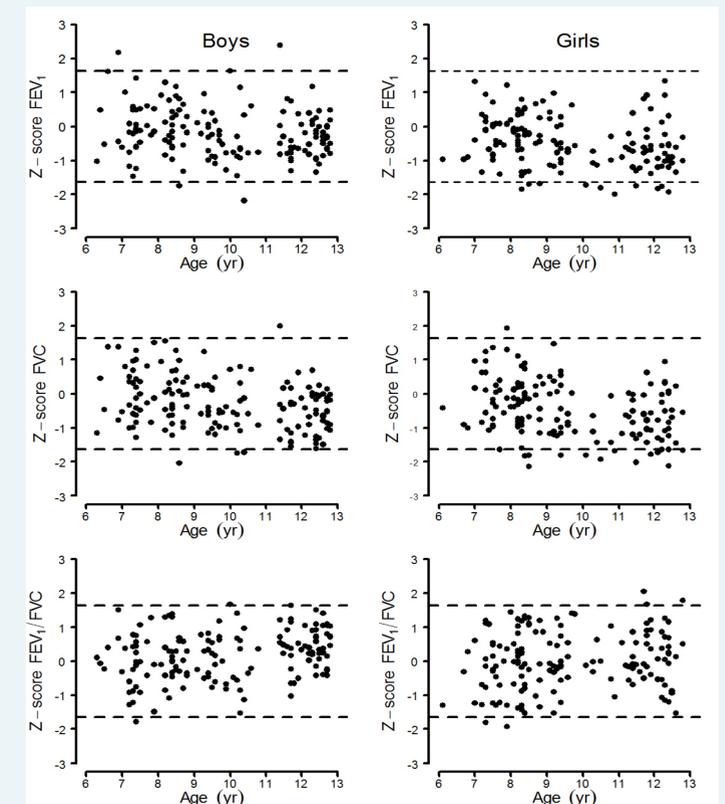
Z-scores for FEV<sub>1</sub> and FVC, but not FEV<sub>1</sub>/FVC, were lower in girls, and correlated positively with zBMI and school type (private or public).

The scatter was remarkably low (SD <1), implying a more homogeneous population than in GLI-2012

**Table 1. Mean zFEV<sub>1</sub>, zFVC, zFEV<sub>1</sub>/FVC (GLI-2012), mean zBMI and zHeight (CDC 2000) in Angolan children.**

	Boys (154) mean (SD)	Girls (153) mean (SD)
zFEV <sub>1</sub>	-0.18 (0.74)	-0.47 (0.73)
zFVC	-0.28 (0.77)	-0.48 (0.82)
zFEV <sub>1</sub> /FVC	0.18 (0.71)	0.01 (0.84)
zBMI	-1.08 (2.34)	-0.75 (2.19)
zHeight	-0.40 (0.95)	-0.15 (1.57)

**Figure 1. zFEV<sub>1</sub>, zFVC, zFEV<sub>1</sub>/FVC values in Angolan children (GLI-2012). Boys n. 154. Girls n. 153**



## CONCLUSIONS

FEV<sub>1</sub> and FVC are proportionally reduced by poor nutritional status as shown by the positive correlation between zBMI, FEV<sub>1</sub> and FVC. Whilst GLI equations grossly fit Angolan children, they should preferably be evaluated in a larger sample, in particular in Angolan girls.