



ESTABLISHMENT OF NORMAL LUNG FUNCTION PARAMETERS IN ADULT SRI LANKAN TAMIL POPULATION

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ABSTRACT

Lung function tests play a vital role in diagnosis and monitoring of respiratory diseases. Normal lung function parameters differ between different ethnic groups. Lung function parameters of normal Sri Lankan Tamil adults are not available. This study aims to establish reference equations for lung function parameters of Sri Lankan Tamils in Northern Province of Sri Lanka. A descriptive cross sectional study was carried out in all 5 districts of Northern Sri Lanka. Participants were selected by cluster sampling. Base line data were obtained by a questionnaire (n =658). Standing height, sitting height, weight, arm span and mid arm circumference were measured. Respiratory function was assessed by a Wright compatible peak expiratory flow meter (PEFR) and by a calibrated spirometer (Cosmed Micro Quark, Italy). In males (n=345), and females (n=313) the mean, and standard deviation was determined for Vital Capacity (VC), Forced Vital Capacity (FVC), Forced Expiratory Volume in the first second (FEV1) FEV1 % and Peak Expiratory Flow Rate (PEFR). The VC, FVC, FEV1 and PEFR have significant (p<0.05) positive correlations with anthropometric measures. Age had a significant (p<0.05) negative correlation with lung function parameters. Step wise multiple regression analysis was used to determine the prediction equations.

$$VC (\text{males}) = 0.22 \text{ height} - 0.018 \text{ age} + 0.022 \text{ arm span} - 3.476 (R^2 = 0.440)$$

$$VC (\text{females}) = 0.013 \text{ height} - 0.015 \text{ age} + 0.019 \text{ arm span} - 2.267 (R^2 = 0.409)$$

$$FVC (\text{males}) = 0.022 \text{ height} - 0.022 \text{ age} + 0.021 \text{ arm span} - 3.142 (R^2 = 0.456)$$

$$FVC (\text{females}) = 0.014 \text{ height} - 0.018 \text{ age} + 0.019 \text{ arm span} - 2.063 (R^2 = 0.453)$$

The results have established the reference values for lung function parameters of Sri Lankan Tamils. These results can be used to clinically diagnose patients with respiratory disease in the country.

Keywords: Sri Lankan Tamils, FVC, FEV1, FEV1%, PEFR