

Prediction equations for pulmonary diffusing capacity for nitric oxide in healthy African American Adults

Abstract: Pulmonary diffusing capacity for nitric oxide (DLNO) is a relatively new pulmonary function test to assess gas transfer in the lung. To date, there are no prediction equations made for healthy adult African-American (AA) Subjects. Thus, the purpose of this study was to create prediction equations for DLNO in this ethnic group. A total of 59 healthy AA individuals (27 males and 32 females) were recruited to perform pulmonary function testing at Georgia State University. They were diverse in age (18-67 yr), height (140-189 cm), weight (47.8-102.4 kg), and body mass index (17.2-32.3 kg/m²). All the subjects completed single-breath maneuvers at rest inhaling 43 ± 4 ppm NO with a standard diffusion mixture. The breath-hold duration was 5.6 ± 0.6 s. Multiple linear regression predicted DLNO based on the subject's age, height, and sex. The prediction equation for DLNO was the following: $DLNO \text{ (mL/min/mmHg)} = 0.92 \cdot (\text{height in cm}) + 38.8 \cdot (\text{sex}) - 0.012 \cdot (\text{age}^2) - 25$, where 1 = male, 0 = female for sex. About 77% of the variance in DLNO was accounted for by sex (67%), age² (7%), and height (4%). The standard error of the estimate in predicting DLNO was 16.2 mL/min/mmHg. It was also found that those with higher resting heart rates had a lower DLNO ($r = -0.28$, $p = 0.03$) but it was not included in the regression model as it did not enhance the fit. In conclusion, the regression model best predicts DLNO in AA subjects below 40 years of age.

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