Mathematical lung ventilation model for tidal breathing

Devdatta   dattadev08@gnail.com
Department of Mathematics,
Indian Institute of Technology Roorke, India.-247667
Coauthors: V.K.Katiyar, Pratibha, Anju Saini

Abstract

Lungs are the most vital component of the human respiratory system. They are located on the two sides of the heart. They are responsible for transporting oxygen from the atmosphere into blood and releasing carbon dioxide from blood to the atmosphere. This model is developed on the basis of the previously established simple mathematical lung model. A simple mathematical lung model for quantitative regional ventilation measurement was developed (Nosil et al 1979) . In the present model, the periodicity of breathing is completely taken into account. In this study we develop a mathematical lung ventilation model which includes the time variation of lung volume during inspiration and expiration. A description is given of the method of measurement that makes it possible to use the mathematical model for determination of lung ventilation and volume parameters. This model is useful to obtain regional lung ventilation and volume parameters.

AMS Classification: 01A61.