

Respiratory Minute Volumes and Breathing Rate -- A Predictive Model¹

Assume that a person is at rest and has the \dot{V}_E and \dot{V}_D given at the top of the table below (both parameters are measured by the typical means):

f	\dot{V}_E (L/min)	V_D (L)	\dot{V}_D (L/min)	\dot{V}_A (L/min)	V_A (L)
12	6.00			3.50	
6					
15					
20					
30					

1. Find and fill in the remaining parameters for the person breathing at 12 breaths per min.
2. Now, predict the minute volumes and other parameters if the subject remains at rest and breathes at the specified rates but in such a way as to not disturb normal acid/base balance.
3. Use this as a hypothesis and test the predictions of this model against the performance of our subjects in lab.

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