

## Recent advances in theoretical models of respiratory mechanics

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Abstract

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**Abstract** As an important branch of biomedical engineering, respiratory mechanics helps to understand the physiology of the respiratory system and provides fundamental data for developing such clinical technologies as ventilators. To solve different clinical problems, researchers have developed numerous models at various scales that describe biological and mechanical properties of the respiratory system. During the past decade, benefiting from the continuous accumulation of clinical data and the dramatic progress of biomedical technologies (e.g. biomedical imaging), the theoretical modeling of respiratory mechanics has made remarkable progress regarding the macroscopic properties of the respiratory process, complexities of the respiratory system, gas exchange within the lungs, and the coupling interaction between lung and heart. The present paper reviews the advances in the above fields and proposes potential future projects.

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