

Author's Accepted Manuscript

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PII: S0021-9290(16)31325-2
DOI: <http://dx.doi.org/10.1016/j.jbiomech.2016.12.032>
Reference: BM8065

To appear in: *Journal of Biomechanics*
Accepted date: 19 December 2016

Cite this article as: Wei Wei, Shi-wei Huang, Lian-hua Chen, Yang Qi, Yi-min Qiu and Shi-tong Li, Airflow behavior changes in upper airway caused by different head and neck positions: comparison by computational fluid dynamics *Journal of Biomechanics*, <http://dx.doi.org/10.1016/j.jbiomech.2016.12.032>

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Airflow behavior changes in upper airway caused by different head and neck positions: comparison by computational fluid dynamics

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Abstract

The feasibility of computational fluid dynamics (CFD) to evaluate airflow characteristics in different head and neck positions has not been established. This study compared the changes in volume and airflow behavior of the upper airway by CFD simulation to predict the influence of anatomical and physiological airway changes due to different head–neck positions on mechanical ventilation. One awake volunteer with no risk of difficult airway underwent computed tomography in neutral position, extension position (both head and neck extended), and sniffing position (head extended and neck flexed). Three-dimensional airway models of the upper

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