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**Title:** The acute effects of postural change and non-invasive ventilation breathing on the regional distribution of lung ventilation: An electrical impedance tomography study

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**Body:** Introduction: The combined effects of postural changes and the use of noninvasive positive pressure ventilation (NIV) on the regional distribution of lung ventilation (RDLV) is still underexplored. The electrical impedance tomography (EIT) has emerged as a consistent technique for the dynamic evaluation of RDLV. Objectives: To evaluate the RDLV in healthy subjects during spontaneous respiration (SR) and during NIV breathing in different body positions. Methodology: The RDLV was assessed by EIT (32 electrodes) in 10 healthy subjects (5 men), during 10 minutes of SR, or with CPAP of 10cmH<sub>2</sub>O and with BiPAP of 15/5cmH<sub>2</sub>O in four body positions (dorsal (D), ventral (V), right lateral (RL) and left lateral (LL)). Results: The figure below shows the % of RDLV in the four quadrants of the lungs.

During SR, the RDLV was higher in the gravity dependent quadrants, mainly in the lateral decubitus, except for the V position. NIV breathing (CPAP and BiPAP) did not alter the pattern of RDLV as compared to SR. Conclusions: EIT can clearly demonstrate that, with the exception of prone positioning, the dependent regions of the lungs are better ventilated both during SR or CPAP and BiPAP breathing.