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Title: Lung centroid pressure in immersed man

Authors: Taylor, NA
Morrison, JB

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Citation: Undersea Biomed Res. 1989 Jan; 16(1): 3-19.

Abstract: Upright immersion imposes a pressure imbalance between alveolar and mean external thoracic pressure. Lung centroid pressure (PLC) is defined as the breathing pressure required to remove this imbalance. Static transrespiratory pressure-volume relationships were determined in subjects immersed in upright (n = 17) and prone (n = 13) postures. Compliances measured during immersion (1.87 +/- 0.15 liter.kPa⁻¹ upright, 1.87 +/- 0.17 liter.kPa⁻¹ prone) were compared with compliances, obtained over the same volume range, while upright in air (1.84 +/- 0.17 liter.kPa⁻¹). PLC was determined by the horizontal (pressure) displacement of immersed compliance curves. PLC was calculated to be +1.33 +/- 0.11 kPa (+13.6 cmH₂O) relative to the sternal notch when upright and -0.69 +/- 0.12 kPa (-7.0 cmH₂O) relative to the sternal plane when prone (mean +/- SEM). Upright PLC did not support the widely used value of +19 cmH₂O (Jarrett AS. J Appl Physiol 1965; 20: 1261-1266). Analysis shows that when data from earlier investigations were adjusted for differences in reference pressure, the collective PLC supports the present results.

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