

**Publication****Sigh-induced changes of breathing pattern in preterm infants****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3925777**Author(s)** Jost, Kerstin; Latzin, Philipp; Fouzas, Sotirios; Proietti, Elena; Delgado-Eckert, Edgar W.; Frey, Urs; Schulzke, Sven M.**Author(s) at UniBasel** [Delgado-Eckert, Edgar](#) ;**Year** 2015**Title** Sigh-induced changes of breathing pattern in preterm infants**Journal** Physiological reports**Volume** 3**Number** 11**Pages / Article-Number** e12613

Sighs are thought to play an important role in control of breathing. It is unclear how sighs are triggered, and whether preterm birth and lung disease influence breathing pattern prior to and after a sigh in infants. To assess whether frequency, morphology, size, and short-term variability in tidal volume (VT) before, during, and after a sigh are influenced by gestational age at birth and lung disease (bronchopulmonary dysplasia, BPD) in former preterm infants and healthy term controls measured at equivalent postconceptional age (PCA). We performed tidal breathing measurements in 143 infants during quiet natural sleep at a mean (SD) PCA of 44.8 (1.3) weeks. A total of 233 sighs were analyzed using multilevel, multivariable regression. Sigh frequency in preterm infants increased with the degree of prematurity and severity of BPD, but was not different from that of term controls when normalized to respiratory rate. After a sigh, VT decreased remarkably in all infants (paired t-test:  $P < 0.001$ ). There was no major effect of prematurity or BPD on various indices of sigh morphology and changes in VT prior to or after a sigh. Short-term variability in VT modestly increased with maturity at birth and infants with BPD showed an earlier return to baseline variability in VT following a sigh. In early infancy, sigh-induced changes in breathing pattern are moderately influenced by prematurity and BPD in preterm infants. The major determinants of sigh-related breathing pattern in these infants remain to be investigated, ideally using a longitudinal study design.

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