Laryngeal function during voluntary cough: Its relationship to penetration/aspiration and voice quality in Parkinson's disease.

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As Parkinson's disease (PD) progresses, individuals can experience dysphagia and voice problems. Ability to clear the airway with cough is critical to remove foreign material penetrated and/or aspirated during a swallow. Cough is comprised of three events including a laryngeal compression and an expiratory phase. Compression phase requires complete laryngeal adduction to generate high subglottic pressure for cough expulsion. Additional abdominal muscle contraction contributes to the development of high expiratory pressure.

Poor laryngeal adduction, in general, is commonly associated with PD and may result in a weak/breathy voice quality. It was hypothesized that laryngeal valving dysfunction, as indicated by increased laryngeal compression time and altered compression pattern during voluntary cough would positively relate to the degree of penetration/aspiration and breathiness during sustained vowel production in patients with PD. If so, this finding would provide evidence that cough and voice quality could be used as screening measure for predicting aspiration risk in this population.