

COPD-related problems hard to swallow

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Patients with moderate to severe chronic obstructive pulmonary disease (COPD) exhibit a disordered breathing-swallowing pattern that may account for their higher risk of aspiration pneumonia, according to new research from the University of Pittsburgh.

In the first issue for April of the American Thoracic Society's [American Journal of Respiratory and Critical Care Medicine](#), Roxann Diez Gross, Ph.D., and colleagues report that [patients](#) with moderate to severe COPD exhibit alterations between breathing and swallowing patterns even when they are not experiencing exacerbations.

While it was previously known that COPD patients exhibited decoupling of the breathing-swallowing pattern of saliva during exacerbations, until now there were no formal studies detailing to what extent, if any, disruptions in breathing and swallowing coordination occurred in COPD patients outside of exacerbations during normal eating.

The researchers examined the relationship between swallowing and timing of breathing in 25 patients with moderate to severe COPD and compared them with 25 healthy subjects. Each subject was asked to consume nine wafer cookies and ten teaspoons of pudding to determine whether there were differences in the handling of solid versus semi-solid food.

The researchers found that in patients with COPD, a pattern emerged that was strikingly different from that of healthy controls.

"In healthy subjects, the usual pattern is to time swallows to occur during early to mid exhalation. Healthy individuals also nearly exclusively follow each swallow with exhalation. This pattern assures that there is sufficient [air pressure](#) below the [vocal folds](#) during a swallow and prevents [inhalation](#) of food residue after swallowing," said Dr. Gross. "In contrast, in COPD patients, we saw that several aspects of their swallowing and breathing timing were disrupted such that swallows were occurring during inhalation or were followed by inhalation. COPD patients also swallowed more often at the end of exhalation at lower lung volumes."

The complicated physiology of the upper respiratory tract may be thrown out of balance by the respiratory burden imposed by COPD, explained Dr. Gross. "Because breathing and eating share the structures of the upper airway, precise coordination is needed to prevent food material from entering the airway while eating. In patients with COPD, the competition for the upper airway may cause the respiratory drive to override [swallowing function](#) and disrupt the normal patterning. The lungs of COPD patients have less elasticity than those of healthy individuals and this may also play a role swallowing safety."

Difficulty swallowing is often related to weakness and is associated with many neurological diseases such as Parkinson's disease. The observed impaired breathing and swallowing patterns in the COPD patients suggest a possible explanation for the presence of swallowing disorders in persons that do not have neurological illness.

Dr. Gross also points out the immediate clinical implication of these findings: "Unrecognized aspiration can occur prior to or during COPD exacerbation and may contribute to the onset and severity of the exacerbations. Patients with COPD should have their swallowing function evaluated during hospitalizations and aspiration should be suspected when COPD exacerbations cannot be linked to viral infections

or other factors," she said.

Further research is being conducted that examines the interactions between control of the respiratory cycle, lung elasticity and swallowing function. Currently, therapies that manipulate the respiratory system are being developed to improve swallowing function and safety.

Source: American Thoracic Society ([news](#) : [web](#))

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