

# Do chronic respiratory diseases increase the risk of dysphagia?

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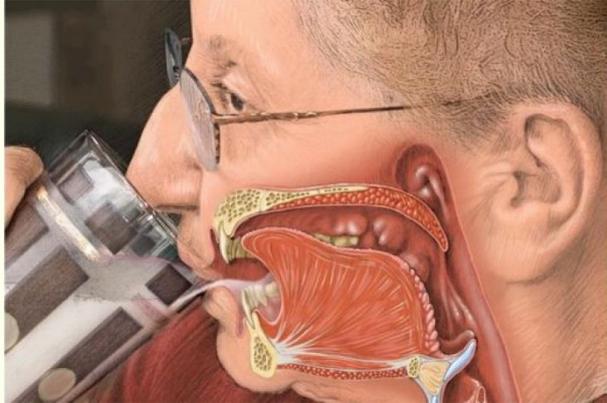


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## Background to the review

The oropharyngeal swallow requires precise coordination of multiple neuromuscular actions (1). Changes in respiratory pattern can compromise this coordination and subsequently the safety of the swallow. Oropharyngeal dysphagia (OD) refers to impairment in swallow function and can cause serious complications including aspiration pneumonia (2, 3). OD associated with chronic respiratory disease has been linked with increased exacerbations in patients with Chronic Obstructive Pulmonary Disease (COPD) (4). As a result of this, patients are at increased risk of deterioration in their health conditions and hospital admissions.

Previous reviews have looked at the relationship between COPD and OD. Given the serious complications associated with OD it is essential to further clarify this relationship considering all chronic respiratory diseases.

## Purpose of the review

The review aimed to examine the effects of chronic respiratory diseases on the oropharyngeal stage of swallowing and identify whether there is an increased risk of OD.

## What methods did the review use?

Two independent literature searches were carried out on PubMed and Embase up to March 2016. Reference lists from the included studies were searched for additional literature. Only studies published in English which undertook screening/assessment for oropharyngeal

- The oropharyngeal swallow is compromised in patients with chronic obstructive pulmonary disease and obstructive sleep apnoea.
- The swallowing abnormalities were not related to the severity of obstructive sleep apnoea.
- Further research is required to fully understand the relationship between chronic respiratory diseases and oropharyngeal dysphagia.

dysphagia or aspiration pneumonia in adults with a chronic respiratory disease with no comorbidities causing OD were included. Screening and quality assessment (QualSyst ratings and ABC rating scale) were carried out by two reviewers with arbitration being carried out by a third reviewer.

## How good is the review and the quality of included studies?

The search strategy for the review only searched two databases which may have resulted in relevant studies being missed. However, no additional studies were identified through screening of included studies reference lists thus relevant studies may have been missed but it is less likely. For both abstract and full title screening there was a good agreement (Weighted Kappa 0.77/0.74). However, there was no protocol registration prior to commencing the review. Furthermore, there is no clear description of the data extraction process. Because of the diversity of included studies, a vote counting approach was used to synthesise the studies which does not take into consideration the number of participants who took part in each individual study.

Due to poor quality of evidence two of the identified studies were not included in the overall findings of the review. This left 26 studies which were classified to be of adequate quality and above, with 17 studies being of strong quality, five being of good quality and the remaining four identified to be adequate quality.

Due to methodological issues within the systematic review and the vote counting method used for evidence synthesis some caution should be used when interpreting the results of this systematic review.

### **What are the results of the review?**

Only studies which examined swallowing function in Obstructive Sleep Apnoea (OSA) or Chronic Obstructive Pulmonary Disease (COPD) were identified.

All eleven studies examining OSA found swallowing abnormalities in OSA patients. The swallowing abnormalities were not related to the severity of OSA. Four out of five studies using a gold standard clinical assessment found that approximately 65% of patients with OSA had a statistically significant subclinical swallowing dysfunction. Two of the studies found that swallowing was more often associated with respiratory event-related arousals with a further two studies finding that the frequency of swallowing had a positive correlation with the Apnoea-Hypopnea Index.

All fifteen studies which examined swallowing within COPD patients reported that swallowing function was compromised compared to healthy controls. These swallowing dysfunctions were observed within either or both oral or pharyngeal phase of swallowing. Two out of the three studies which used a functional health status questionnaire for dysphagia found 15% to 20% of COPD patients reported a functional issue. Aspiration was reported in COPD patients in four out of the eight studies using Video-fluoroscopy or Fibre-optic Endoscopic Evaluation of Swallowing.

### **Main findings and application to practice**

The authors concluded that there is a relationship between chronic respiratory diseases and OD. All of the studies included in the review identified alterations in swallowing pattern in patients with COPD and patients with OSA. This was found regardless of severity of OSA or whether the patient was experiencing an exacerbation of COPD. Studies included in the review identified that people with Gastroesophageal reflux disease (GERD) had higher chance of swallow reflex abnormality. COPD increases the prevalence of GERD which has been identified to induce OD. Therefore, in practice, the presence of this comorbidity could indicate an increased risk of OD. One study noted an increased frequency of COPD exacerbations in patients with abnormal swallowing reflex.

Research is still required in this area to further evaluate the relationship between OD and chronic respiratory diseases to ensure optimum care of these patients.

### **What are the main limitations of the review?**

In both classification of OSA and COPD there were concerns around validity and reliability of classification. Studies of OSA used a range of classification strategies, while those of COPD used post bronchodilators FEV1/FVC <70%, which has been shown to possibly produce false positives in persons aged >50 years. Similarly, a wide variation of tools was used for assessing or screening for OD within all studies. Finally, there was inclusion of studies with patients with GERD which can induce OD. Due to the wide variation in studies and the subsequent methods used for synthesis, further research is required to verify the review's findings.

### **Who are the authors and where is it published?**

This is an international review with authors from Tunisia, France, Australia and The Netherlands. The corresponding author is from the University Hospital of Sousse, Tunisia.

The review is published in the Journal of Respiratory Medicine. The journal has an impact factor of 3.237.

### **References**

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