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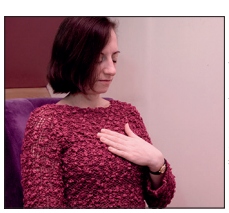
Treating COVID-19-related breathlessness with novel interventions

COVID-19 was announced as a global pandemic in March, 2020, by WHO, and shortly afterwards it was noted that people infected with SARS-CoV-2 might have ongoing symptoms, commonly breathlessness, fatigue, joint pain, and changes in cognition and health-related quality of life.[1] The number of people with lasting symptoms of COVID-19 continues to rise and it is estimated that 1·5 million people have lasting symptoms of COVID-19 in the UK alone.[2] Up to 25% of individuals admitted to hospital with COVID-19 felt they needed rehabilitation, although the proportion of non-hospitalised patients requiring support for symptoms is intangible.[3,4] The need for rehabilitation causes a huge demand on current and emerging services in the context of the ongoing impacts of COVID-19 on service provisions. Considering this, there is a huge need for a variety of flexible interventions to improve the lasting symptoms of COVID-19.

In *The Lancet Respiratory Medicine,* Keir Philip and colleagues[5] report their findings from a randomised controlled trial of an online wellbeing and breathing programme (English National Opera [ENO] Breathe), developed by the ENO learning and participation team alongside clinicians. This programme focuses on breathing retraining using singing techniques, and is delivered via an online platform. This is the first study to explore a singing-based intervention for individuals with lasting symptoms of COVID-19. The provision and implementation of singing techniques for breathlessness vary but are largely provided by charities and support groups and not as part of routine health care. Singing techniques have demonstrated improvements in conditions such as chronic obstructive pulmonary disease (COPD) for health-related quality of life and exercise capacity, and the evidence for this is increasing.[6,7] Philip and colleagues[5] found improvements in elements of breathlessness and mental wellbeing for individuals with breathlessness following SARS-CoV-2 infection and, as a result, suggest that ENO Breathe provides a flexible and suitable strategy for managing some of the lasting symptoms of COVID-19. Access to this intervention can provide health-care professionals with a useful tool to aid recovery and can supplement routine care.

This randomised controlled trial was delivered pragmatically and, as a result, it is difficult to determine uptake. Encouraging uptake of therapeutic interventions is often challenging, and the participants in Philip and colleagues' study will undoubtedly be self-selecting; however, generally one size doesn't fit all in therapeutic interventions and, therefore, ENO Breathe might be a useful addition to treatment for those who wish to participate. Participants in this study had received routine care before receiving the intervention and, therefore, its benefits and safety in individuals without



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screening are unknown. Owing to the study design and pragmatic delivery, there were some inevitable limitations in outcome measure selection, particularly as the intervention was delivered in the context of lockdowns and reduced service provision. The theoretical premise for the effect of singing on breathlessness has been explored in the context of COPD and can result in altered breathing mechanics.[8] Interestingly, in Philip and colleagues' study, breathlessness did not significantly improve between groups using the dyspnoea-12 or visual analogue scale (VAS) for rest and walking, but did demonstrate improvements in the VAS running score. It is possible that this was a result of the participants' interpretation of the question and the recall required to interpret their breathlessness experiences. Breathlessness is a complex symptom that is difficult to quantify and is influenced by physiology, psychology, and social circumstances. The relative contribution of these influences can vary and, therefore, breathlessness can be difficult to measure in a quantitative manner.[9] Breathlessness can manifest as different sensations, which are in part captured by the dyspnoea-12, and it is possible that interventions target a specific sensation or influencing factor, which might explain the variability in responses to interventions. Philip and colleagues stipulate that this intervention might require considerations to patient selection and that further research should explore the characteristics that result in a favourable outcome to tailor interventions suitably, alongside patient preferences.

The key message from Philip and colleagues' study is that the ENO Breathe intervention can improve mental wellbeing and elements of breathlessness. The authors provide a novel intervention that can be added to the breathlessness toolbox in the treatment of COVID-19 symptoms and beyond. Further evidence to support other interventions in the treatment and management of COVID-19 symptoms is essential and would add to the suite of options for health-care professionals, which would have a positive effect on service provision.

I declare no competing interests.

Enya Daynes
enya.daynes@uhl-tr.nhs.uk

Centre of Exercise and Rehabilitation Sciences, National Institute for Health and Care Research Leicester Biomedical Research Centre—Respiratory, University Hospitals of Leicester, Leicester, UK (ED); Department of Respiratory Sciences, University of Leicester, Leicester, UK (ED)

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Clinical impact of bacterial syndromic testing in pneumonia

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A cornerstone in the management of patients with pneumonia is timely and appropriate antibiotic therapy, which requires early and accurate pathogen detection.[1] Pathogen identification is currently limited by the poor sensitivity and long turnaround time of standard culture-based diagnostic tools.[2] Empirical antibiotics are often initiated while clinicians await results of respiratory culture. If inadequate empirical antibiotics are selected, the risk of adverse outcomes is increased, highlighting a need for better diagnostic tools to optimise antibiotic prescribing.[3] Over the past decade, rapid culture-independent methods of pathogen detection emerged as a potential way to improve diagnosis and ideally limit inappropriate antibiotic use. However, to date, no randomised controlled trial has assessed the impact of multiplex