Developing a Yoga Programme with and for Adults with Long Covid

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Long Covid (LC) is a complex syndrome affecting an estimated two million people living in the UK[1]. The most reported symptoms are fatigue, shortness of breath, difficulty concentrating and joint pain as well as secondary symptoms such as anxiety and low mood [2]. Reported quality of life for this population is low[3] and approximately 110,000 people are absent from work due to LC at any one time[4]. The long-term trajectory for these difficulties remains to be seen but early studies suggest that many continue to struggle for years[5]. LC therefore represents a significant health, societal and economic problem.

The variety and complexity of symptoms associated with LC presents a challenge for healthcare providers. Currently there is no effective pharmacological treatment and evidence for therapeutic interventions remains limited. LC is a syndrome, however research has tended to focus on specific symptoms rather than the management of the condition as a whole[6]. Developing holistic interventions is likely to improve outcomes for people with LC.

How about yoga?

Since the early 20th century yoga has been well researched as a therapeutic practice. Yoga has been found to improve lung function and capacity[7], alleviate anxiety and depression[8], decrease pain severity and fatigue as well as improve quality of life[9]. Yoga practice has also been shown to improve cognition for both working age and older adults[10]. The potential usefulness of yoga for LC could therefore be inferred from its beneficial impact on these over-lapping symptoms.

This capacity to improve outcomes for people experiencing such a wide range of difficulties could be explained by the growing evidence that yoga helps modulate the autonomic nervous system (ANS) [11]. By improving parasympathetic activity and reducing the 'fight or flight' sympathetic ANS response, yoga could help in the management of any condition which related to a disruption of the ANS.

It has been hypothesised that long COVID (LC) may be related to, or even driven by, disruption of the autonomic nervous system (ANS) [11]. This hypothesis is supported by a growing body of evidence demonstrating

reduced heart rate variability in individuals with long COVID which is consistent with impaired autonomic regulation [1].

This association between ANS function and LC lends further support to the hypothesis that yoga could be a helpful intervention. Along with two associate professors Dr Caroline Dalton and Dr Ningrong Lei from Sheffield Hallam University, I set out to develop and assess the impact of a yoga programme designed with and for adults with LC.

Consultation

The development of the yoga programme was strongly informed by consultation work carried out with people with LC who were recruited via Sheffield Teaching Hospitals NHS Trust. Those consulted wanted a "*bespoke*" intervention designed by yoga teachers who understand the condition and have experience teaching people with long term health problems. The opportunity to check-in with the yoga teacher at the beginning of the class was felt to be important given how variable symptoms can be.

An emphasis on breathing was preferred by many with any movements/ physical postures being gentle and optional. This is understandable given that for some, physical exercise had become trigger for symptom flare-ups. It would be helpful to provide different options so that participants can manage "*the level of effort required*". "*Activity levels have dropped*" for many people with LC and it can be hard to "*gauge the level*" that they should aim for with physical activity.

Movement could help to "*stretch these stiff muscles*" and "*fill the void in absence of doing previous activities*". There is a need for any movement practice to be gentle, gentler than a "*normal yoga class*" which can be "*too much*". "*Making people feel comfortable enough to engage or just 'chill' during some sections will be important*". But it would also be helpful to have more challenging options that would enable each person to "*go as easy or as hard as they like*".

Participants would need reassurance that "*yoga won't worsen symptoms*" and to feel confident that the practice would "*be a restorative activity rather than a risky one*". The prospect of increasing activity was considered a risk as this can be associated with "*symptom flare-ups*". To manage this risk, it will be important to let "*people opt in or out of any part of the exercise*". Another way to make participants feel safe is to provide information about *"what certain movements and practices are meant to help with"* and *"ensuring that you are doing it in a safe way with an instructor there"*. Opportunities for social interaction and peer support were considered important as many of those we consulted reported feeling isolated.

Designing the yoga programme
We recruited Rebecca Allen, a BWY yoga teacher with fifteen years' experience teaching people with Myalgic Encephalomyelitis/ Chronic Fatigue Syndrome (ME/CFS) and two years' experience teaching people with LC to help us with the project. We designed a six-lesson yoga programme based on the consultation process as well as yoga literature, existing evidence and helpful advice from Paul Fox (founder of the Yoga in Healthcare Alliance https://www.yogainhealthcarealliance.com/).

Each lesson started with a five-minute talk to introduce the theme for that week. The themes were: 1. Noticing the body and the breath, 2. Exploring the breath, 3. Rest, 4. Pacing, 5. Change, 6. Checking-in. Each lesson followed the structure set out below.

Activity	**Description**
Arrival	Welcome – a chance to chat with the teacher and other participants
Introduction	Introduction to the theme for each week
Four-part check-in	Guiding through a process of noticing the body, mind, energy levels and breath
Breathing practice	Practices included: • Breath awareness • Abdominal, thoracic, clavicular breathing
Gentle movement	Gentle movements to release tension in the body including: • Hand clenches • Gentle shoulder movements • Exploring movement of the spine • Arm raising and lowering in time with the breath
Breathing practice	Extending the exhale with one of the following practices: • Humming bee breath (Brahmari) • Ocean Breath (Ujjayi) • Golden Ribbon Breath
Relaxation	Yoga Nidra lying down or seated. • Settling the body • Rotation of awareness • Resolve

	• Externalisation
Time to chat	The opportunity to ask questions, to discuss what was experienced and to get to know one another.

Programme delivery
Eleven people with Long Covid (LC) were recruited through a local community support group to participate in a preliminary evaluation of the programme's acceptability. The sample comprised seven women and four men, ranging in age from 20 to 81 years (mean age = 54 years). Sessions were held at the community centre where the support group regularly met. Attendance fluctuated with number of participants ranging 5 to 8 each week. Reasons given for non-attendance were holidays and exacerbation of symptoms (either of long covid or another health condition). Participants were asked to complete a daily symptom diary to monitor any changes or potential exacerbations. These diary entries, alongside follow-up discussions, enabled us to consider whether yoga practice was associated with any reported worsening of symptoms. No participants identified yoga practice as a trigger for symptom exacerbation.

Participants were asked to fill out questionnaires at the start and end of the programme and provide verbal feedback throughout. They reported looking forward to the lessons and finding that the movement and breathing exercises became easier each week. The lessons were described *as "relaxing", "gentle", "hypnotic"* and *"calm"*. Participants stated that they went home relaxed, had better sleep and *"felt calmer for the rest of the day"*. Participants varied in their preference for different parts of the programme with some preferring the breathing exercises and some movement. All participants engaged with and responded so well to the Yoga Nidra practice that over the course of the programme we gradually increased the time from 10-20 minutes and introduced the 'resolve' stage of the practice for lessons five and six.

Finding a comfortable sitting position was difficult for some as well as getting up off the floor after lying/ sitting whilst others felt so comfortable that they worried about falling asleep. Future lessons could benefit from "*more squidgy mats*" and being in a quieter environment as some participants told us that noises outside the room felt disruptive.

Asked about the likelihood that they would continue to practice yoga, participants stated that they would be keen to keep practicing yoga and would try to put what they had learned into practice *"when stressed"*. It was suggested that ongoing weekly lessons would be appealing and help to bring yoga practice into their daily routine.

Seven participants completed a questionnaire at the end of the programme. All respondents indicated that participation didn't require "*a lot of effort*". Six participants "*strongly liked*" and one participant "*liked*" the lessons. Six out of seven participants reported that their symptoms had improved due to yoga practice.

Future research
The findings from this project provide preliminary support for the yoga programme. Further research will be needed in order to investigate the effectiveness of the programme.

Biographies

Rebecca Allen is BWY trained yoga teacher with 20 years' experience. She specialises in teaching adults with chronic fatigue as well as other long-term conditions. https://www.rebeccaallenyoga.co.uk/

Dr Caroline Dalton is an Associate Professor of Neuroscience and Genetics and Lead for the Living Well with a Health Condition Theme at the Advanced Wellbeing Research Centre, Sheffield Hallam University

Dr Ningrong Lei is an Associate Professor of Systems Engineering at Sheffield Hallam University. Her research focuses on the design and development of diagnostic decision support systems.

Paul Fox is the CEO of the Yoga In Healthcare Alliance charity and co-author of Yoga on Prescription with Heather Mason. Paul delivers NHS-accredited yoga programmes to NHS patients and staff. He is Yoga Ambassador for the Personalised Care Institute.

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