Exercise programme could improve breathlessness and quality of life for those with rare pulmonary hypertension

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A new exercise rehabilitation programme developed at Warwick Medical School and University Hospitals Coventry and Warwickshire NHS Trust could have the potential to improve fitness and quality of life for people living with pulmonary hypertension.

Health and exercise researchers at the University of Warwick and UHCW NHS Trust are investigating whether a twice-weekly exercise programme supervised by specialist staff will help people with this rare lung condition, who experience debilitating symptoms of breathlessness and fatigue and have few treatment options available.

The research is part of the Supervised Pulmonary Hypertension Exercise Rehabilitation (SPHERe) trial led by Dr. Gordon McGregor from the University of Warwick, University Hospitals Coventry and Warwickshire NHS Trust and Coventry University, funded by the NIHR. The trial begins recruiting participants from October and involves researchers from University Hospitals Birmingham NHS Foundation Trust, the University of Leicester, Queen Mary University of London and Royal Holloway and Bedford New College.

Pulmonary hypertension is a disabling long-term condition that can greatly reduce quality of life. The condition makes blood vessels supplying the lungs become thick and stiff, restricting blood flow. This increases pressure in these vessels meaning the heart must work harder

to pump blood to the lungs. Over time, the heart may begin to fail. Breathlessness, fatigue and dizziness are the most common symptoms, making everyday activities difficult. When activity is a struggle, people naturally become anxious about how much is safe or comfortable; which can lead to isolation and depression.

While most people are aware of hypertension (high blood pressure), few are aware that pulmonary hypertension (high blood pressure in the lungs) is a rarer and more serious condition that reduces life expectancy and quality of life. About 9000 people in the UK have group 1 pulmonary hypertension, but it's not known how many people have the four other types of pulmonary hypertension that this study will also examine.

Supervised exercise rehabilitation is a common treatment for many heart and lung conditions such as heart attack and chronic obstructive pulmonary disease (COPD). It can improve fitness, breathlessness, anxiety, depression, and quality of life. Some research has shown that exercise rehabilitation may be helpful for people with certain types of pulmonary hypertension.

The trial aims to recruit 350 people with pulmonary hypertension, beginning in the East and West Midlands, to take part in a specially developed exercise rehabilitation programme in what will be the largest randomised control trial ever conducted in people living with pulmonary hypertension.

Dr. Gordon McGregor, from UHCW NHS Trust and Warwick Clinical Trials Unit, said: "There are very few options for people living with pulmonary hypertension, which is one of the reasons why this research is so important. For many people with pulmonary hypertension, particularly those who already have heart disease or lung disease, there are no effective treatments at all. These people often have multiple health issues and if they are already debilitated, pulmonary hypertension

can have a huge impact by reducing their quality of life further.

"From talking to people with pulmonary hypertension, we know that the most important benefit of any treatment is reduced breathlessness and fatigue. People have told us that this would reduce anxiety about daily activities, helping them to 'do more', walk further and have a better quality of life."

The trial will compare exercise rehabilitation with usual care (advice about keeping physically active). The exercise group will be invited to complete eight weeks of twice-weekly supervised out-patient exercise rehabilitation at local NHS hospitals or community venues.

The exercise programme will mostly focus on cardiovascular exercise, but functional resistance training will also be a key feature as people with pulmonary hypertension have often lost their strength and may struggle with many day-to-day activities. The idea is to improve strength, agility, co-ordination and balance as well as reducing breathlessness.

Typical activities will include walking, exercise bikes and rowing machines as well as fun fitness exercises using steps, floor agility ladder, low rise balance beam, power bags, ball throw and bounce.

To test how well the programme works, participants will undertake a supervised walking assessment and complete quality of life questionnaires.

Participants will receive psychological and motivational support to help reduce anxiety and improve exercise adherence.

Dr. McGregor adds: "We're doing everything possible to make it enjoyable with a lot of fun exercises, whilst making sure that the exercise is effective enough to benefit the muscles, lungs and heart.

"We know that for people with lung disease, exercise rehabilitation is really beneficial. It can improve their quality of life and their fitness, reduce the number of infections they have, and help reduce the number of hospital stays. We're really hoping that people with pulmonary hypertension can benefit in the same way."

Iain Armstrong, chair of the patient organisation Pulmonary Hypertension Association UK (PHA UK), said: "Pulmonary hypertension has a major impact on quality of life, so we support quality research that seeks to improve this for patients and their loved ones. There is a richness of strong evidence that points to the highly positive impact of regular physical activity. We will be following and supporting the progress of this study closely. We look forward to seeing the results, and the ultimate benefits for people living with pulmonary hypertension."

Provided by University of Warwick

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