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Comparing telerehabilitation and conventional rehabilitation in chronic obstructive pulmonary disease (COPD)

Submission date
18/07/2025

Recruitment status
No longer recruiting

Registration date
22/07/2025

Overall study status
Completed

Last Edited
18/07/2025

Condition category
Respiratory

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Chronic obstructive pulmonary disease (COPD) is a long-term lung condition that makes breathing difficult and affects daily life. Pulmonary rehabilitation—programmes that help people with COPD improve their breathing and physical fitness—can be very helpful. However, not everyone can easily attend in-person sessions, especially those living far from hospitals or with mobility issues.
This study looks at whether telerehabilitation (rehabilitation done remotely using technology) is as effective as traditional, in-person rehabilitation. The aim is to see if telerehabilitation could be a good alternative or addition to regular care.

Who can participate?
Adults aged 18 or over with a confirmed diagnosis of stable COPD can take part, as long as they are physically and mentally able to join the programme and have given their consent. People who cannot give consent or have serious cognitive difficulties are not eligible.

What does the study involve?
The study includes 100 participants, randomly split into two groups:
One group takes part in a 3-week telerehabilitation programme from home, using remote monitoring tools and mobile apps.
The other group attends a 3-week inpatient rehabilitation programme at the MSWiA Specialist Hospital in Głuchołazy.
Before and after the programme, all participants are tested on their lung function, physical fitness, breathing difficulty, oxygen levels, and how far they can walk in six minutes.

What are the possible benefits and risks of participating?
Participants may feel better physically and breathe more easily after the programme. There are no known health risks from taking part. All personal data will be kept private and participants' safety will be protected.

Where is the study run from?
MSWiA Specialist Hospital in Głuchołazy, Poland.

When is the study starting and how long is it expected to run for?
June 2023 to February 2024

Who is funding the study?
Opole University of Technology (Poland)

Who is the main contact?
Dr Katarzyna Bogacz, K.Bogacz@po.edu.pl

Contact information

Type(s)
Public, Scientific, Principal Investigator

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
Nil known

Study information

Scientific Title
Assessment of the effects of telerehabilitation in patients with chronic obstructive pulmonary disease

Acronym
TELE-COPD

Study objectives
The aim of the study is to compare the effectiveness of home-based telerehabilitation with standard inpatient pulmonary rehabilitation in patients with Chronic Obstructive Pulmonary Disease (COPD). The evaluation focuses on changes in pulmonary function, exercise capacity, dyspnoea intensity, oxygen saturation, and functional performance before and after a 3-week rehabilitation program.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 20/04/2018, Bioethics Committee State Higher Vocational School in Nysa (Armii Krajowej 7, Nysa, 48-300, Poland; +48 77 448 4700; pwsz@pwsz.nysa.pl), ref: No 4/2018

Study design
Interventional randomized controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Home, Hospital

Study type(s)
Efficacy

Participant information sheet
See study outputs table

Health condition(s) or problem(s) studied
Assessment of the effects of rehabilitation and telerehabilitation in patients with chronic obstructive pulmonary disease

Interventions
The research included 100 patients diagnosed with Chronic Obstructive Pulmonary Disease (COPD). Qualification for pulmonary rehabilitation was carried out in Specialist MSWiA Hospital in Glucholazy immediately after patients' hospitalization. All patients underwent pulmonary ventilatory function assessment, six-minute walk test (6MWT), subjective assessment of dyspnoea on the Borg scale (10-point scale), assessment of arterial blood oxygen saturation (SpO_2), and the "sit-to-stand" test, which is part of the Fullerton test to assess overall physical condition. Based on the results, patients were qualified for adequate pulmonary rehabilitation model. To ensure homogeneity of the study sample, the research included only patients qualified for Model C.

Next, patients were randomly allocated to research group (BA) and control group (KO) with the use of simple randomization method. The random assignment of patients to the study group (BA) and the control group (KO) was performed by an independent person not involved in the implementation of the intervention or the assessment of the results. Individual physical training intensity was determined for each patient, based on tests' results.

Intervention Type
Behavioural

Primary outcome measure
1. Pulmonary ventilation function - Spirometry - baseline and post 3 weeks
2. Exercise capacity - 6-minute walk test (6MWT) - baseline and post 3 weeks
3. Dyspnoea - on the 10-point Borg scale- baseline and post 6-minute walk test (6MWT)
4. Saturation - pulse oximeter - baseline and post 6-minute walk test (6MWT)
5. Overall performance - Sit-to-Stand test- baseline and post 3 weeks

Secondary outcome measures
1. Energy expenditure, assessed based on MET values obtained during the 6-minute walk test (6MWT), measured at baseline and after 3 weeks of rehabilitation.
2. FEV_1/FVC ratio, assessed using spirometry, measured at baseline and after 3 weeks of rehabilitation.
3. Level of dyspnoea, assessed using the 10-point Borg scale after the 6MWT, measured at baseline and after 3 weeks of rehabilitation.
4. Oxygen saturation (SpO_2), assessed using pulse oximetry after the 6MWT, measured at baseline and after 3 weeks of rehabilitation.
5. Lower limb strength, assessed using the Sit-to-Stand test, measured before and after 3 weeks of rehabilitation.

Overall study start date
01/06/2023

Completion date
05/02/2024

Eligibility

Key inclusion criteria
1. Clinically stable COPD diagnosis
2. Age over 18 years
3. Ability to participate in the rehabilitation programme
4. Patient's informed and voluntary consent to participate in the study

Participant type(s)
Patient

Age group
Adult

Lower age limit

18 Years

Sex
Both

Target number of participants
100

Total final enrolment
100

Key exclusion criteria
1. Inability to give informed consent
2. Significant cognitive functions' disorders preventing independent functioning
3. Other medical contraindications to participation in the rehabilitation programme

Date of first enrolment
01/06/2023

Date of final enrolment
15/01/2024

Locations

Countries of recruitment
Poland

Study participating centre
Ministry of Internal Affairs and Administration's Specialist Hospital of St. John Paul II
Physiotherapy Department, Faculty of Physical Education and Physiotherapy
Karlowicza 40
Glucholazy
Poland
48-340

Sponsor information

Organisation
Specialist Hospital of the Ministry of the Interior and Administration in Głuchołazy (Szpital Specjalistyczny MSWiA w Głuchołazach),

Sponsor details
ul. Proszkowska 76
Opole
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Sponsor type
Hospital/treatment centre

Website
https://po.edu.pl/

Funder(s)

Funder type
University/education

Funder Name
Politechnika Opolska

Alternative Name(s)
OUTec, Technical University of Opole, Opole University of Technology, PO, OUT

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Poland

Results and Publications

Publication and dissemination plan
Planned publication in a peer-reviewed journal

Intention to publish date
31/12/2025

Individual participant data (IPD) sharing plan
Individual participant data (IPD) collected and/or analyzed during the current study will be available upon reasonable request from:
Dr. Katarzyna Bogacz – k.bogacz@po.edu.pl

Type of data that will be shared:
Anonymized individual-level data, including age, sex, results of functional tests (6MWT, sit-to-

stand test, Borg scale, SpO_2), group assignment (intervention/control), and pre- and post-rehabilitation outcome measures.

When and for how long the data will be available:
Data will be available upon request following publication of the study results and will be retained for a minimum of 5 years.

Access criteria:
Researchers must submit a brief proposal for a scientifically valid analysis and agree to maintain data confidentiality and comply with ethical standards.

Who can access the data:
Qualified researchers conducting academic or clinical research in physiotherapy, pulmonary rehabilitation, or telemedicine.

Purpose and types of analysis permitted:
Data may be used for secondary statistical analyses, meta-analyses, or systematic reviews focused on evaluating the effectiveness of telerehabilitation or inpatient rehabilitation in COPD.

Mechanism for data access:
Data will be shared electronically after approval of the request and signing of a confidentiality agreement by the requesting researcher.

Consent and ethical considerations:
All participants provided informed consent. Only anonymized data will be shared, in compliance with data protection regulations (GDPR). All procedures follow ethical standards and the Declaration of Helsinki.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	in English		18/07/2025	No	Yes
Participant information sheet	in Polish		18/07/2025	No	Yes