

Resistance training in adults with Crohn's disease

Submission date 11/12/2017	Recruitment status No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 12/12/2017	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 12/08/2022	Condition category Digestive System	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Crohn's disease (CD) is one of the main types of inflammatory bowel disease (IBD), a name given to long-term conditions which causes inflammation (swelling) in the digestive system (gut). Although it can affect any part of the gut, it is most common at the end of the ileum (the last part of the small intestine) or the colon (the large intestine). It is characterised by different phases of disease activity, alternating between remission (when the disease is not active) and flare-ups (when the disease is active and causing symptoms). Currently, there is no cure for Crohn's disease, and so treatments tend to be geared towards ensuring the disease remains in remission. Currently, little is known about the effects of exercise in CD; however it could have several beneficial effects such as reducing fatigue and inflammation, increasing muscle and bone strength, and improving overall quality of life. The aim of this study is to look into the effects of a resistance exercise programme in people suffering from CD.

Who can participate?

People aged 16 years or older who have mildly active or inactive Crohn's disease.

What does the study involve?

Participants are randomly allocated to one of two groups. Those in the first group receive usual care only. Those in the second group receive usual care plus a six-month resistance training programme involving a combination of supervised and unsupervised exercise sessions. Each session begins with a five-minute warm up, then approximately 45 minutes of whole-body resistance training (using body weight and elastic bands for resistance), and a three-minute cool down. At the start of the study, and then again at three and six months, participants complete a number of questionnaires and physical tests in order to find out if there has been any change to their muscle function, fatigue and quality of life. At the start of the study and at six months, participants are asked to provide a stool (faeces) sample so that the level of inflammation in their intestines can be assessed, as well as undertaking a bone scan to assess changes in bone mineral density.

What are the possible benefits and risks of participating?

Potential benefits of participating include improvements in muscle function, bone strength, fatigue levels and quality of life. There are no direct risks of participating, as the exercise

programmes have been found to be safe and participants' progress will be closely overseen by a study investigator.

Where is the study run from?

1. Northumbria University (UK)
2. Freeman Hospital (UK)

When is the study starting and how long is it expected to run for?

October 2016 to September 2019

Who is funding the study?

1. Northumbria University (UK)
2. PROCARE ApS (UK)

Who is the main contact?

Dr Garry Tew

Contact information

Type(s)

Scientific

Contact name

Dr Garry Tew

ORCID ID

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Contact details

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Additional identifiers

Protocol serial number

35164

Study information

Scientific Title

Effects of a 6-month practical resistance training programme on muscle function and bone mineral density in adults with inactive or mildly active Crohn's disease: Study protocol for a randomised controlled trial

Study objectives

The main aim of this study is to investigate the effects of a 6-month resistance training programme on muscle function and bone mineral density in adults with inactive or mildly-active Crohn's disease.

Ethics approval required

Old ethics approval format

Ethics approval(s)

North East - Tyne & Wear South Research Ethics Committee, 17/11/2017, ref: 17/NE/0308

Study design

Randomised; Interventional; Design type: Treatment, Physical, Rehabilitation

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Specialty: Gastroenterology, Primary sub-specialty: Gastroenterology; UKCRC code/ Disease: Oral and Gastrointestinal/ Other diseases of the digestive system

Interventions

Participants are randomly allocated to one of two groups. Those in the first group receive usual care only. Those in the second group receive usual care plus a six-month resistance training programme involving a combination of supervised and unsupervised exercise sessions. Each session will begin with a five-minute warm up, then approximately 45 minutes of whole-body resistance training (using body weight and elastic bands for resistance), and a three-minute cool down. At the start of the study, and then again at three and six months, participants complete a number of questionnaires and physical tests in order to find out if there has been any change to their muscle function, fatigue and quality of life. At the start of the study and at six months, participants are asked to provide a stool (faeces) sample so that the level of inflammation in their intestines can be assessed, as well as undertaking a bone scan to assess changes in bone mineral density.

Intervention Type

Other

Primary outcome(s)

1. Bone mineral density at the femoral neck, greater trochanter and lumbar spine (L2- L4) is measured using dual energy X-ray absorptiometry at baseline and 6 months
2. Maximum voluntary isometric and isokinetic strength of the elbow flexor and knee extensor muscles is measured using isokinetic dynamometry at baseline, 3 months and 6 months
3. Handgrip strength is measured using a handgrip dynamometer at baseline, 3 months and 6 months
4. Lower-limb muscle endurance is measured using the 30-second chair sit-to-stand test at baseline, 3 months and 6 months
5. Upper-limb muscle endurance is measured using the 30-s arm bicep curl test at baseline, 3 months and 6 months

Key secondary outcome(s)

1. Quality of life is measured using the Inflammatory Bowel Disease Quality of Life Questionnaire (IBDQ) at baseline, 3 months and 6 months
2. Health status is measured using the EuroQol 5-dimensions, 5-level questionnaire (EQ-5D-5L) at baseline, 3 months and 6 months
3. Fatigue is measured using the Inflammatory Bowel Disease Fatigue Scale (IBD-F) at baseline, 3 months and 6 months
4. Body mass is measured using balance beam scales at baseline and 6 months
5. Stature is measured using a stadiometer at baseline and 6 months
6. Disease activity is measured using the Crohn's Disease Activity Index (CDAI) at baseline and 6 months
7. Bowel inflammation is determined by measuring faecal calprotectin at baseline and 6 months
8. Blood markers of inflammation (e.g. C-reactive protein) are measured at baseline and 6 months
9. Physical activity is measured using the Scottish Physical Activity Questionnaire (SPAQ) at baseline, 3 months and 6 months
10. Feasibility and acceptability outcomes will include rates of recruitment, retention, attrition, missing data, intervention adherence and adverse events, which will all be calculated once follow-up is complete

Completion date

31/10/2019

Eligibility**Key inclusion criteria**

1. Age 16 years or older
2. Clinical diagnosis of Crohn's disease for at least 4 weeks before screening visit
3. Inactive (<150 on Crohn's Disease Activity Index [CDAI]) or mildly active (150-219 on CDAI) Crohn's disease assessed no greater than 4 weeks before screening visit
4. Faecal calprotectin <250mcg/g recorded no greater than 4 weeks before screening visit
5. Stable medications for at least 4 weeks before screening visit
6. Able to provide written informed consent and complete the study questionnaires
7. Able to travel to the research centre for assessment visits and exercise sessions

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Total final enrolment

47

Key exclusion criteria

1. Absolute contraindications or co-morbidities to exercise testing and training as defined by the American College of Sports Medicine
2. Deemed unsuitable to undertake resistance exercise (assessed by gastroenterologist /physician)
3. Planned major surgery within the first 6 months after randomisation
4. Female planning pregnancy within the first 6 months after randomisation
5. Pregnant
6. Current participation in > 2 sessions/week of resistance exercise (self-reported)
7. Participation in another clinical trial for which concurrent participation is deemed inappropriate

Date of first enrolment

08/01/2018

Date of final enrolment

28/02/2019

Locations

Countries of recruitment

United Kingdom

England

Study participating centre

Northumbria University

Northumberland Road

Newcastle upon Tyne

United Kingdom

NE1 8ST

Study participating centre

Freeman Hospital

High Heaton

Newcastle upon Tyne

United Kingdom

NE7 7DN

Sponsor information

Organisation

Northumbria University Newcastle

ROR

<https://ror.org/049e6bc10>

Funder(s)

Funder type

Government

Funder Name

Northumbria University

Alternative Name(s)

Northumbria University, Newcastle

Funding Body Type

Private sector organisation

Funding Body Subtype

Universities (academic only)

Location

United Kingdom

Funder Name

PROCARE ApS

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Dr Garry Tew, Email: garry.tew@northumbria.ac.uk, anonymised participant level data.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/09/2020	30/10/2020	Yes	No
HRA research summary			28/06/2023	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes

version 2.1

Protocol file		28/01/2019	12/08/2022	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes