

BEWEL (Breast - Evaluation of Weight and Exercise for Lymphoedema): a feasibility study to compare four different weight control and exercise programmes for women with breast cancer related lymphoedema

Submission date 09/08/2012	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 10/10/2012	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 20/05/2024	Condition category Cancer	☐ Individual participant data

Plain English summary of protocol

Background and study aims:

Arm swelling (lymphoedema) affects 1 in 5 breast cancer patients. Weight control and exercise may help to reduce arm swelling and improve wellbeing, but are not part of usual treatment. This study aims to assess the benefits of weight control and exercise for reducing arm swelling and whether this advice is best delivered in supervised classes or as a home based programme.

Who can participate?

Women with lymphoedema who are being managed by the Lymphoedema Team at The Nightingale Centre. We recruited 60 women, who live in the Greater Manchester or Cheshire area and are otherwise in good health.

What does the study involve?

All participants will be asked to attend a class at The Nightingale Centre with our trial physiotherapist who will reinforce self management of lymphoedema including skincare and, arm exercises. At this visit the participants were weighed and had the volume and shape of their arms measured. The amounts of fluid in their arms were measured using a bioimpedance device. The bioimpedance machine passes an extremely small electrical current through arms and legs and measures the resistance to the flow of this current. The participants did not feel anything when the measurement is carried out as the current is very small.

The participants were asked to re-attend 2-3 weeks later when they were allocated to one of four different weight control and exercise programmes:

Group 1: Received comprehensive written diet and exercise information

Group 2: 12 weekly exercise and diet education classes

Group 3: 12 week home based diet and exercise programme

Group 4: 12 week home based exercise programme

Allocation to the groups was done by chance (randomly) which means neither the participants nor the study co-ordinators will be able to choose which group they joined.

What are the possible benefits and risks of participating?

The recommended diet and exercise programme are known to be safe for breast cancer patients. The diet meets all nutritional needs. The exercise programmes are supervised by a specialist physiotherapist and participants received individualised advice to ensure they exercised at a safe level. The DXA scan exposed participants to a very low dose of x-rays. Each scan is the equivalent to one tenth of the dose of a standard chest x-ray, equivalent to one day of normal background radiation.

All four groups were encouraged to lead a healthy active lifestyle and eat a healthy diet. Following this advice promoted weight loss which should improve future health and well being. There were no known risks of participating,

Where is the study run from?

Nightingale Centre and Genesis Prevention Centre, Wythenshawe Hospital, Manchester, UK

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

The study started in April 2011 and recruitment was completed in December 2011

Who is funding the study?

University Hospital of South Manchester Research Endowment Fund

Who is the main contact?

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Contact information

Type(s)

Scientific

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Additional identifiers

Protocol serial number

R&D Ref 2011BR003

Study information

Scientific Title

BEWEL (Breast - Evaluation of Weight and Exercise for Lymphoedema): A randomised controlled feasibility study to compare four different weight control and exercise programmes for women with breast cancer related lymphoedema

Acronym

BEWEL

Study objectives

This pilot study aims to determine the relative efficacy and acceptability of two different weight control and upper body arm exercise programme (home based and supervised) and an upper body arm exercise only intervention as compared to usual care for overweight women with breast cancer related lymphoedema. This study will inform which of the interventions should be tested in the future large scale randomised study.

Primary research question:

To assess any changes in arm swelling achieved with our interventions and usual care groups measured with a perometer.

Secondary research questions:

1. To assess any changes in arm volume achieved with our interventions and usual care groups measured with a multi-frequency bioimpedance electrical analysis (BEA)
2. To test the uptake and acceptability of two different weight control and upper body arm exercise programmes (home based and supervised) and an upper body arm exercise only intervention as compared to usual care.
3. To assess any changes in arm function (questionnaire and range of movement), and quality of life in the three intervention groups as compared with the usual care group.
4. To validate changes in total body fat assessed by a total body multifrequency 8-electrode BEA meter (Tanita MC180) compared to the criterion method of total body DXA amongst patients with arm lymphoedema to assess whether BEA can be used to assess changes in body fat in these patients.
5. To validate 2 self report methods for assessing physical activity [7 day physical activity diaries and the Recent Physical Activity Questionnaire (RPAQ)](1;2) as compared to the criterion method of accelerometers in this population to assess whether self reports can be used in the future study.
6. To determine whether perometer or multi-frequency bioimpedance electrical analysis (BEA) is best for monitoring the interventions. The size of changes in arm swelling with the perometer achieved with the interventions will inform the required sample size for the future definitive randomised study.
7. To assess changes in systolic and diastolic blood pressure with the 3 interventions as compared to usual care.

Ethics approval required

Old ethics approval format

Ethics approval(s)

North West 10 Research Ethics Committee Greater Manchester North ,24/01/ 2011, ref: 11 /H1011/2

Primary study design

Interventional

Study design

Single-centre randomised controlled trial

Study type(s)

Quality of life

Health condition(s) or problem(s) studied

Lymphoedema, Breast Cancer

Interventions

Group 1 Control standard written advice

This group will receive comprehensive standard written advice outlining the importance of weight control, a healthy diet, and the importance of cardiovascular exercise (Healthy Living with Breast Cancer booklet, UHSM). At the end of the trial participants in the control group will receive individualised advice from the trial dietitian and physiotherapist.

Group 2 - Supervised weight control plus upper body exercise programme

This group receive initial individualised diet and cardiovascular advice from the study dietitian and physiotherapist. Women are subsequently invited to attend 12 weekly group exercises and diet education classes at the gym facility at UHSM delivered. These sessions comprise a warm up, 20-30 minutes cardiovascular exercise (50-80% age-adjusted heart rate maximum) and progressive stretch and flexibility exercises to improve arm mobility, strength and improve posture. The diet and behaviour change educational component based on the trans theoretical model of behaviour change will be delivered by the study dietitian and covers topics including healthy cooking, motivation, problem solving, body image.

Group 3 Home based weight control plus upper body exercise programme

This group receive initial individualised diet and cardiovascular from the study dietitian and physiotherapist. The physiotherapist will also demonstrate the key exercises for the upper body exercise programme and provide a booklet for a progressive 12 week programme of strengthening, toning and flexibility exercises to increase arm and shoulder mobility. Individual diet and exercise goals and recommendations will be reinforced with bi-weekly phone calls (from either study dietitian/ physiotherapist). These calls will check compliance, changes in diet, physical activity and address individual problems. Subjects will mailed a summary of key motivational, behavioural, diet and exercise issues after each call. This group will also receive 6 bi weekly mailings to include all of the diet, exercise and weight control information received by Group 2 in their supervised sessions.

Group 4 Upper body exercise only

The physiotherapist will demonstrate the key exercises for the upper body exercise programme and provide a booklet for a progressive 12 week programme of strengthening, toning and flexibility exercises to increase arm and shoulder mobility. Progress will be reinforced with bi-weekly phone calls from the study physiotherapist. These calls will check compliance and address individual problems.

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

Changes in excess arm volume in affected arm assessed with a perometer (Pero-Systems 350S) assessed at baseline and 12 weeks.

Key secondary outcome(s)

1. Changes in excess arm volume in affected arm assessed with multi frequency bioelectrical impedance (L-DEX U400 bioimpedance spectroscopy device)
2. Uptake to the trial
3. Acceptability and adherence to the supervised and home based weight loss and exercise only interventions, and any adverse effects associated with the programmes
4. Change in weight, body fat and fat free mass (FFM) (DXA) waist and hip circumferences assessed with DXA and multifrequency 8-electrode BIA method (Tanita MC180)
5. Change in arm mobility, function (quick DASH)
6. Change in quality of life including arm morbidity and fatigue sub scales (FACT-B+ 4, FACT F)
7. Change in hand grip strength
8. Change in range of movement in affected arm and shoulder, elbow, wrist and cervical spine; flexion, abduction, extension, adduction, medial and lateral rotation
9. Change in dietary intake (7 -day diet diary)
10. Change in levels of physical activity assessed with a 7 day activity diary, Recent Physical Activity Questionnaire (RPAQ) and 7 day accelerometer

Completion date

30/11/2011

Eligibility**Key inclusion criteria**

1. Women receiving maintenance therapy for breast cancer related arm lymphoedema i.e. compression sleeves + / - manual lymphatic drainage
2. Overweight/obese BMI > 25 Kg /m²
3. Stable lymphoedema over the past 3 months defined as:
 - 3.1. No intensive therapy (i.e. no manual decongestive treatment)
 - 3.2. No recorded 10% change in volume of the affected arm lasting > 7 days (assessed with perometer)
 - 3.3. No lymphoedema related infections (cellulitis) requiring antibiotics
4. Had lymphoedema sleeve reassessed by lymphoedema practitioner within the last 3 months
5. Any age
6. Able to understand written instructions and record diet diaries
7. No chemotherapy in previous 3 months or radiotherapy in the previous 12 months
8. Live within Greater Manchester / Cheshire area to maximise uptake and retention to programme and study
9. Sedentary < 40 minute moderate exercise / week
10. Willing to be randomised to the 4 treatment groups
11. Written informed consent

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Key exclusion criteria

1. Metastatic disease or axillary recurrence
2. Physical/psychiatric condition which limits compliance to diet and exercise interventions
3. Eastern Cooperative Oncology Group (ECOG) performance status < 2
4. Already losing weight or following exercise programme
5. Plans for surgery during the study period
6. Pace maker

Date of first enrolment

05/04/2011

Date of final enrolment

30/11/2011

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre

Nightingale Centre and Genesis Prevention Centre

Manchester

United Kingdom

M23 9LT

Sponsor information**Organisation**

University Hospital of South Manchester NHS Foundation Trust (UK)

ROR

<https://ror.org/00he80998>

Funder(s)

Funder type
University/education

Funder Name
University Hospital of South Manchester Research Endowment Fund (UK)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		17/05/2024	20/05/2024	Yes	No