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Effects of a walking programme on the strength, pain, function and mobility of the thigh muscles in patients with osteoarthritis of the knee

Submission date
07/01/2015

Recruitment status
No longer recruiting

Registration date
26/01/2015

Overall study status
Completed

Last Edited
09/02/2023

Condition category
Musculoskeletal Diseases

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol
Background and study aims:
Knee osteoarthritis is a major cause of chronic disability in older adults worldwide. The symptoms can be knee pain and morning stiffness. The patients might feel weakness in their thigh (quadriceps) muscles and have difficulty with the activities of daily living. The results of previous studies suggest that a simple walking programme can reduce pain and improve function and quality of life in patients with knee osteoarthritis. Retro walking might provide additional benefits to those associated with forward walking. The aim of this study is to investigate the effect of retro and forward walking on quadriceps muscle strength, pain, function, and mobility in individuals with knee osteoarthritis.

Who can participate?
Individuals with a diagnosis of knee osteoarthritis, aged 40–70 years old.

What does the study involve?
Participants are randomly allocated to one of three groups (A, B and C). Group A have two sessions (10 minutes each) of retro walking. Group B have two sessions (10 minutes each) of forward walking. Patients in groups A and B also receive a standard physiotherapy training programme. Group C receive only a standard physiotherapy programme.

What are the possible benefits and risks of participating?
The benefits of the retro and forward walking programmes are improvements in knee pain, disability, and quality of life; another benefit of the retro walking programme is increase in the quadriceps strength. The risks of the programmes are minimum or none.

Where is the study run from?
King Saud University (Saudi Arabia)

When is the study starting and how long is it expected to run for?
March 2014 to December 2015

Who is funding the study?
King Saud University (Saudi Arabia)

Who is the main contact?
Mr Shahnawaz Anwer

Contact information

Type(s)
Public

Contact name
Mr Shahnawaz Anwer

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Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title
Effects of a backward and forward walking programme on the strength, pain, function and mobility of the quadriceps in patients with knee osteoarthritis: a randomised controlled trial

Study objectives
1. Retro and forward walking as an adjunct to a standard physiotherapy programme has significant effects on quadriceps muscle strength, pain, function, and mobility in patients with osteoarthritis knee.
2. There are significant differences in the effects of retro and forward walking as an adjunct to standard physiotherapy programme on quadriceps muscle strength, pain, function, and mobility in patients with osteoarthritis knee.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Ethics subcommittee, Rehabilitation Research Chair, King Saud University, Riyadh, Saudi Arabia, 20/04/2014, ref: RRC-2014-010

Study design
Double-blind randomised controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Knee osteoarthritis

Interventions
Participants will be randomised to one of three groups:
1. Group A participants will have two sessions (10 minutes each) of the retro walking programme with 5 minutes of warm up and cool down for 3 days a week for 6 weeks on a flat surface at their maximum pace along with a standard physiotherapy programme. They will gradually increase the walking time up to half an hour. Individuals will do ankle toe movements, hamstring stretching, gastrosoleus stretching and heel-raise exercises during warm up and cool down.
2. Group B participants will have two sessions (10 minutes each) of the forward walking programme with 5 minutes of warm up and cool down for 3 days a week for 6 weeks on a flat surface at their maximum pace along with a standard physiotherapy programme. They will gradually increase the walking time up to half an hour. Individuals will do ankle toe movements, hamstring stretching, gastrosoleus stretching and heel-raise exercises during warm up and cool down.
3. Group C participants (control) will receive only a standard physiotherapy programme.
Outcomes will be measured at baseline and at the end of week 6.

Intervention Type
Behavioural

Primary outcome(s)
1. Knee pain, measured with the Numeric Rating Scale
2. Knee function, measured with the Western Ontario and McMaster University Osteoarthris Index
Outcomes will be measured at baseline and at the end of week 6.

Key secondary outcome(s))
1. Isometric quadriceps muscle strength, measured with a hand-held dynamometer
2. Mobility, measured with the timed up and go test
Outcomes will be measured at baseline and at the end of week 6.

Completion date
30/12/2015

Eligibility

Key inclusion criteria

1. Physician-diagnosed knee osteoarthritis, based on the American College of Rheumatology clinical and radiographic diagnostic criteria
2. Age 40–70
3. Kellgren-Lawrence grade of 1–3

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Total final enrolment
68

Key exclusion criteria
1. History of knee surgery within the past 3 months
2. Received physical therapy and an intra-articular injection for the knee within the past 3 months
3. History of a systemic arthritic condition
4. History of any other muscular, joint or neurological condition affecting the function of the lower limb

Date of first enrolment
03/08/2014

Date of final enrolment
30/10/2015

Locations

Countries of recruitment
Saudi Arabia

Study participating centre
College of Applied Medical Sciences, King Saud University
Building Number 24
G095/1
PO Box 10219
Riyadh
Saudi Arabia
11433

Sponsor information

Organisation
King Saud University

ROR
https://ror.org/02f81g417

Funder(s)

Funder type
University/education

Funder Name
King Saud University

Alternative Name(s)
, KSU

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Saudi Arabia

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 Mr Shahnawaz Anwer.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	protocol	09/04/2019	09/02/2023	Yes	No
Protocol article		12/04/2016		Yes	No
Basic results		13/01/2017	25/01/2017	No	No