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An exercise protocol for the prevention of acute anterior knee pain (AKP) in military recruits undergoing phase 1 training

Submission date
16/03/2010

Recruitment status
No longer recruiting

Registration date
26/04/2010

Overall study status
Completed

Last Edited
22/07/2013

Condition category
Injury, Occupational Diseases, Poisoning

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

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

Contact name
Mr Russell Coppack

Contact details
Rehabilitation Division
Defence Medical Rehabilitation Centre
Headley Court
Epsom
United Kingdom
KT18 6JW
+44 (0)7717 212036
russ.coppack916@mod.uk

Additional identifiers

Protocol serial number
0603/40

Study information

Scientific Title

An exercise protocol for the prevention of acute anterior knee pain (AKP) in military recruits undergoing phase 1 training: a single-blind cluster randomised controlled trial

Study objectives
A targeted exercise intervention will result in a statistically significant reduction in the incidence of acute anterior knee pain (AKP), compared to non-intervention controls, in recruits undergoing phase 1 training.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Ministry of Defence (MOD) Personnel Research Ethics Committee approved on the 10th February 2006 (ref: 0603/40)

Study design
Single-blind cluster randomised controlled trial

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Anterior knee pain (AKP)/patellofemoral pain syndrome (PFPS)

Interventions
Injury prevention intervention:
The intervention group will undertake the existing common military training syllabus and the AKP preventative exercise protocol. This protocol will centre on the following components of training:
1. Quadriceps, hamstrings, gastrocnemius and iliotibial band (ITB) muscle stretching
2. Quadriceps, vastus medialis oblique (VMO) open and closed kinetic chain strengthening
3. Gluteal muscle strengthening

The intervention will be completed on average 7 times per week during the warm-up and warm-down of each scheduled physical training period.

Control group programme:
The control group will complete the same common military syllabus with existing 'general' warm-up and warm-down exercises.

'Time exposed' to training, in both the intervention and control arms of the study, was defined as the length of time an individual spent in training with his or her original training group free of AKP. Patients were thus censored at the point they were removed from training (various time-points through the 14-week training period). Participants who successfully completed training with their original troop were censored at the point of exit (14 weeks). There was no follow-up after the 14-week point.

Intervention Type

Other

Phase
Not Applicable

Primary outcome(s)
Incident case of AKP occuring during the 14-week period of phase 1 training

Key secondary outcome(s))
Occupation outcome of training for each participant defined as:
1. Successful completion of training
2. Medical discharge (MD)
3. Discharge as of right (DAOR: a voluntary discharge at the request of the recruit)
4. Unfit for Army Service (UFAS: recruits incapable of meeting the training standards)
5. Back squadding (recruits held back in training)
6. Other (withdrawal from training for all other reasons)

All assessed throughout the entire 14-week trial period.

Completion date
01/10/2008

Eligibility

Key inclusion criteria
British Army recruits (aged 17 - 25 years, either sex) undergoing phase 1 training will fulfil the eligibility criteria for inclusion in the trial if they exhibit signs and symptoms of AKP with no evidence of any other specific pathologic condition. The inclusion criteria is:
1. Anterior or retropatellar pain arising from at least two of the following: prolonged sitting, stair-climbing, squatting, running, kneeling, hopping/jumping
2. Insidious onset of symptoms unrelated to a traumatic incident
3. Presence of pain on palpation of the patellar facets, on step down from a step, or during a double-legged squat

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Key exclusion criteria
1. Signs and symptoms of meniscal or other intra-articular pathologic condition
2. Ligament laxity or tenderness
3. Tenderness over the patellar tendon, illiotibial band, or pes-anserinus tendons

4. Osgood-schlatters or Sinding Larsen-Johanssen syndromes
5. Knee joint effusion or hip/lumbar referred pain
6. History of patellar dislocation
7. Other structural damage to the knee

Date of first enrolment
30/08/2006

Date of final enrolment
01/10/2008

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Rehabilitation Division
Epsom
United Kingdom
KT18 6JW

Sponsor information

Organisation
Army Recruitment Training Division (ARTD) (UK)

Funder(s)

Funder type
Other

Funder Name
Army Recruitment Training Division (ARTD) (UK) (ref: D/ATRA/5/22/7/12; dated 09 Sep 2005)

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	pilot study results	01/05/2011		Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes