Reviewer's report

Title: Study Protocol: Does isolated hip strengthening for patellofemoral pain syndrome give better long term results than traditional quadriceps based training? A randomised controlled trial.

Version: Date: 2 July 2014

Reviewer: Simon Donell

Reviewer's report:

This is an excellent proposal in a very important subject. The authors need to consider the following:

1. This is a three-limb study but the title implies only two. Having said that it is not clear what the purpose of the control group is until mentioned briefly in the Discussion and Conclusion section at the end. This should be justified in Methods.

2. The term Patellofemoral Pain Syndrome (PFPS) is not approved by the International Patellofemoral Study Group; Anterior Knee Pain is preferred. The problem is the definition of the patient cohort. This proposal makes a very good stab at it, and is pragmatic.

3. Inclusion criteria – clinical examination: Patellar compression is painful in the normal knee if undertaken forcefully enough. How will this be controlled?

4. I would exclude patients with severe trochlear dysplasia on imaging from the study as they have a direct mechanical cause for their AKP. The problem is that definition of “severe” is contentious, but is best described as “obvious” on plain lateral Xray. Subtle trochlear dysplasia is known to be associated with AKP.

5. Hypermobility is a cause of AKP in around 35% of patients referred to secondary care. The Beighton score (or equivalent) should be measured and the patients excluded if, say, > 3, or included and tested in the subanalyses. I would include them, as the only therapy that has a chance of working is hip exercises. If patients are hypermobile then the severity of any concomitant trochlear dysplasia is less important.

6. Randomisation details are very important. Please confirm that it is a computer produced random-number generation, and that the nurse will take the envelopes sequentially in order, by number.

7. The Kujala score (Ref 33) is not a 13-point score, the score is out of 100. The main problem with it is that a change from 10 to 20 is not the same as a change from 90 to 100.

8. Is the primary endpoint at 3-months or 12-months? I would assume that it is 12-months.

Copyedits:

It is worth standardising the number reporting style i.e. as words or as numbers.
One system is to report all numbers greater than nine as numbers, and less than 10 as words except when the number refers to a measurement, grade, classification, figure or table.

L62: “patellar maltracking”
L73: “for a short-term”
L73, 74, 83, 134, 166: “quadriceps-based”
L97: “observer-blinded”
L191: “by standardised, validated questionnaires”
L215: “Likert”
L218: Louden et al Ref number
L300: “Conclusion”

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests