Hip Strength in Males with Patellofemoral Pain Syndrome: A Pilot Study

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Term: Fall 2013
Subject: Sports Medicine
Level: Advanced
Course code: 4IM01E
Abstract

Study Design: Cross-sectional. Background: Although decreased hip abduction and lateral rotation strength has been found in females with patellofemoral pain syndrome (PFPS), few studies have included males. Aim: To determine if hip abduction and lateral rotation strength is decreased in males with PFPS. Methods: Eight males participated. Isometric hip abduction and external rotation strength was measured with a hand-held dynamometer. Four subjects had unilateral patellofemoral pain (mean age = 26.5 ± 7.5 years) and 4 asymptomatic subjects were controls (mean age = 23 ± 6.4 years). The recorded measurements from the symptomatic legs were compared with the asymptomatic legs, and also with the controls. Results: No significant differences in hip abduction or lateral rotation strength were found between the symptomatic and asymptomatic legs of male subjects with PFPS. The PFPS subjects did not have generally weaker hip strength compared with the asymptomatic controls. Conclusion: Males with PFPS do not appear to have decreased hip abduction and lateral rotation strength. However, the sample size was too small for conclusions to be drawn. This study can be used as a preliminary step in gathering evidence about factors affecting PFPS in males, which may in turn shed light on appropriate clinical treatments.

Key Words: anterior knee pain, hip abduction, hip lateral rotation, patella, pfps
Abstrakt


Nyckelord: främre knäsmärta, höftabduktion, höftutåtrotation, patella, pfss
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1. Introduction

Patellofemoral pain syndrome (PFPS), sometimes referred to as “anterior knee pain,” is one of the most common knee disorders, affecting both the general population and physically active individuals. Several authors report that symptoms are more common in females, others report no predominant gender differences, and others have found anterior knee pain to be more common in males. Typically, patients describe diffuse pain around the patellofemoral joint, most often along the medial aspect of the patella, but also retropatellar and lateral. Pain usually occurs during activities that increase the compressive forces on the patellofemoral joint, such as running, inclined walking, stair ascent and descent, squatting and prolonged sitting with bent knees.

In the absence of trauma, PFPS is believed to be caused by repetitive microtrauma, overload and abnormal patellar tracking, which can lead to increased stress on peripatellar soft tissue and/or on the patellofemoral joint. The mechanism of injury can, in many cases, be multifactorial. Although consensus concerning the etiology and pathophysiology of PFPS is lacking, several internal risk factors have been suggested. Some of these include malalignment of the lower extremity, muscle or soft tissue tightness and muscle imbalance or weakness. Malalignment of the lower extremity is believed to be one of the reasons for abnormal patellar tracking during flexion and extension. Some of the factors which are thought to contribute to malalignment are genu valgum, genu varum, genu recurvatum, femoral anteversion, tibial varum, pronation of the subtalar joint and increased Q-angle. Muscle or soft tissue tightness, for example, in the lateral retinaculum, quadriceps, m. gastrocnemius, hamstrings, hip flexors and tractus iliotibialis, is associated in various ways with increased stress on the patellofemoral joint. Weak quadriceps muscles are commonly found in individuals with PFPS, as well as imbalance between m. vastus medialis obliquus and m. vastus lateralis. In relation to m. vastus lateralis, m. vastus medialis, in this patient population, is often weak or has impaired neuromuscular activity, which is likely to result in lateral displacement of the patella during knee extension.
During the past decade, researchers have begun to focus on the role of the hip muscles in PFPS. For example, Ireland et al. Robinson and Nee, Chichenowski et al., Bolgla et al., and Baldon et al. showed that females with PFPS are more likely to have weak hip abductor and lateral rotator muscles compared with matched asymptomatic females. Chichenowski et al. and Robinson and Nee also found a significant difference in hip abductor and lateral rotator strength between the affected and non-affected side in subjects with PFPS. Nakagawa et al. showed that there is a correlation between reduced strength in the knee extensors and hip lateral rotators, and increased pain and disability in females with PFPS. A recent systematic review suggests that m. gluteus medius activity is delayed during activities such as stair ascent/descent and running in subjects with PFPS. Prins and van der Wurff conclude in a review article that there is, in female subjects with PFPS, strong evidence of decreased hip lateral rotation, abduction and extension strength, moderate evidence for reduced hip flexion and medial rotation strength, and no evidence for decreased hip adduction strength compared with healthy subjects (controls). One study, which included both male and female subjects, concluded that stronger pre-injury hip abductors (particularly in relation to their hip adductors) and weaker pre-injury hip lateral rotators (particularly in relation to their hip medial rotators) are associated with the development of patellofemoral pain, while another study found no such predisposing factors among females. Also in contrast to other studies, Piva et al. found no difference in hip lateral rotator and abductor strength between subjects with and without PFPS. The theoretical connection between hip muscle dysfunction and PFPS is that reduced hip muscle strength and neuromuscular control (especially in the hip abductor and lateral rotator muscles) may lead to increased adduction and medial rotation of the femur during weight-bearing activities, which contributes to lateral displacement of the patella.

Conservative treatment of PFPS has traditionally focused on the knee joint, and there is scientific evidence supporting the positive effects of quadriceps training. The first case report on hip muscle training as a treatment for PFPS was, to the current author’s knowledge, published in 2003. Since 2006, more studies on treating PFPS with hip training have been published, the majority between 2009 and 2012. Many of these studies show a positive effect of strengthening the hip abductors and lateral rotator muscles on pain and disability among subjects with PFPS. However, as in previously...
mentioned articles where hip muscle strength is examined, there are very few male subjects. For example, in eleven of the studies where gender is specified, pooled together, a total count of 288 subjects were female and 15 were male.

Even though the majority of documented cases show PFPS to be more common in females, there is still a high prevalence and incidence of PFPS in males. This warrants the need for more studies with male subjects in order to determine whether hip training is an appropriate treatment for males as well as females with PFPS. Therefore, the aim of this investigation was to examine hip strength in males with PFPS. It is hypothesized that males with unilateral PFPS will demonstrate decreased hip abduction and lateral rotation strength in their symptomatic leg compared with their asymptomatic leg.

2. Methods

2.1 Subjects

An a priori power analysis was conducted using data from an earlier study done on females. Using the variable with the highest standard deviation (isometric hip abduction), it was calculated that 11 subjects per group (22 knees) would be needed to adequately power (80%) this cross-sectional study.

Subjects were recruited from the local community between January – March, 2013, through posted flyers in physical therapy clinics, universities, gyms and athletic clubs (Appendix A). For the control group, subjects were recruited by way of oral information given to them directly by the project leader. Eight males between the ages of 17 and 33 volunteered for the study. All subjects participated in recreational or organized sports such as ice hockey, soccer, floor ball, thai-boxing, cross country skiing, running, cycling and weight training. There were no elite athletes among the subjects. No attempts were made to match the subjects for weight, height, age or sport participation.

Inclusion criteria for the PFPS group were: (1) healthy, physically active male, age 16 – 40; (2) unilateral anterior knee pain, retropatellar and/or adjacent to the patella; (3) insidious onset of symptoms unrelated to a traumatic incident; (4) at least a “2” on a 10-point VAS,
with 0 as no pain and 10 as maximal pain; (5) pain during at least two of the following activities: running, stair ascent and/or descent, inclined walking, squatting and prolonged sitting with bent knees.

Exclusion criteria for both groups were: (1) back, pelvis, hip or foot pain in the past 8 weeks; (2) bilateral knee pain; (3) prior surgery to one or both hips or knees; (4) recent trauma (in the past 8 weeks) to back, hip, pelvis, lower leg, ankle, foot, one or both knees; (5) swelling around the knee; (6) subjects with concurrent ligament, tendon, cartilage or meniscal pathology in either knee; (7) history of patellar dislocation in either knee; (8) already started supervised treatment/rehabilitation. Subjects over 40 years were excluded in order to decrease the likelihood of symptoms being caused by patellofemoral osteoarthritis.\textsuperscript{13,36}

All subjects signed an informed consent prior to participation (Appendix C). This study was evaluated by, and carried out in accordance with Etikkommittén Sydost (The Southeast Ethics Committee).

2.2 Instrumentation
Subjects rated their current pain, for the purpose of inclusion/exclusion, on a 10-cm visual analog scale (VAS), with 0 indicating no pain and 10 indicating the worst pain imaginable. VAS is known to be a reliable and valid tool for assessing knee pain.\textsuperscript{10,12}

Peak isometric muscle strength was measured using a MicroFET hand-held dynamometer (Hoggan Health Industries, West Jordan, UT), which was certified for calibration and accuracy within $\pm 2\%$. This instrument digitally displays the peak force and duration of a muscle contact. Hand-held dynamometers have been found to have high intrarater reliability when testing hip strength in healthy, physically active individuals\textsuperscript{30,58} and to be a valid instrument for muscle strength testing in a clinical setting.\textsuperscript{52} Furthermore, the level of rater experience has been found to have little or no bearing on intrarater reliability.\textsuperscript{30}

2.3 Procedure
The knee evaluation and muscle strength testing took place as a single session in a physical therapy clinic, after acquiring permission from the head of the clinic (Appendix D). Before
data collection, all subjects were required to fill in a questionnaire for the purpose of recording demographic information and for the screening of inclusion and exclusion criteria (Appendix B). Weight, height and leg dominance (preferred leg for kicking a ball) for both groups were self-reported through this questionnaire. In addition, subjects were evaluated and screened by a licenced physical therapist before testing, to further insure that criteria for the study were met. One subject was excluded after being diagnosed with patellar tendinosis (Jumper’s Knee).

The same licenced physical therapist performed both the evaluation and testing. The knee evaluation took about 10 minutes, as did the muscle testing. Testing positions for hip abductor strength and hip lateral rotator strength were in accordance with standard positions recommended by the manufacturer (Hoggan Health Industries) as well as with traditional procedures described by Kendall.31 During the test procedure, the examiner held the dynamometer in a stable position, allowing for the maximum ability to resist the force applied by the subject. The examiner then instructed the subject to apply maximal force against the device (“make” method). The examiner started the test with the command, “press” and ended the test after 5 seconds by saying “rest.” No verbal encouragement was given during the testing in order to maintain a uniform testing procedure. After 1 practice test, subjects performed 3 strength tests for each muscle, with 20 seconds of rest between the tests. The peak force values from the 3 tests were recorded. Both the right and left legs were tested on all subjects. Muscle testing order was random. After the testing, the subject was allowed to see the test results.

For measuring hip abduction strength, the subject was positioned side-lying on an examination table with the test hip in neutral position, superior to the opposite hip, and the knee extended. The underneath leg was flexed at the hip and knee. A tightly rolled towel, 15 cm in diameter, was placed beneath the lower part of the subject’s test leg in order to facilitate rest between measurements. The dynamometer was then placed 5 cm proximal to the proximal edge of the lateral malleolus, in the direction of abduction. The subject was instructed to press the leg upward and slightly backward (to avoid hip flexion through recruitment of m. tensor fascia latae). After testing one side, the subject was then positioned
in the same way on the opposite side to test abduction strength of the contralateral limb. Figure 1 shows isometric strength testing of the hip abductors.

For testing the hip lateral rotators, the subject was seated on the examination table with the hips and knees flexed at 90° and the legs hanging free from the floor. Resistance was applied 5 cm proximal to the proximal edge of the medial malleolus, against hip lateral rotation. This procedure is shown in Figure 2. To limit recruitment of the hip adductors, the subject was asked to place his hands on his thighs, just over the knees, and to hold the thighs on the table during the entire test. The tester then moved to the opposite side of the subject and tested the contralateral limb using the same position and procedure.

Figure 1. Isometric strength testing of the hip abductors using a hand-held dynamometer.
2.4 Data Analysis

For each subject, the muscle force values of the three tests were recorded and normalized to body weight. Normalizing was done by dividing the force value (in kg) by the subject’s body weight (in kg). Data were analyzed using SPSS (PASW Statistics 18). Two sample t-tests were used to compare demographics between the groups, as well as to compare the mean peak normalized hip strength values of the symptomatic legs of PFPS subjects with the mean peak normalized hip strength of randomly selected legs from the controls. The mean peak normalized hip strength between the symptomatic and asymptomatic legs of the subjects with PFPS was determined using paired t-tests, as was the hip strength between the dominant and non-dominant legs of the controls. A significance level of 0.05 was used for all comparisons.

3. Results

3.1 Demographics

Demographics of the PFPS and control groups are presented in Table 1. The PFPS group included 4 subjects (mean age = 26.5 ± 7.5 years, mean height 183.75 ± 4.8 cm, mean weight 77 ± 4.8 kg, mean duration of symptoms 11.75 ± 8.2 months). Three of these subjects were right leg dominant and 3 of them had patellofemoral pain in their non-dominant leg. All 4 subjects described pain around the lateral aspect of the patella. The control group consisted of 4 subjects (mean age = 23 ± 6.4 years, mean height 181.25 ± 3.9 cm, mean weight 79.75 ± 11.6 kg). All 4 of the control subjects were right leg dominant. There were no statistical
differences between the age, height and body weight of the PFPS subjects compared to the controls.

**Table 1.** Subject demographics and clinical characteristics (mean ± SD).

<table>
<thead>
<tr>
<th></th>
<th>PFPS Group (n=4)</th>
<th>Control Group (n=4)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>26.5 ± 7.5</td>
<td>23 ± 6.4</td>
<td>0.504</td>
</tr>
<tr>
<td>Height, cm</td>
<td>183.75 ± 4.8</td>
<td>181.25 ± 3.9</td>
<td>0.451</td>
</tr>
<tr>
<td>Weight, kg</td>
<td>77 ± 4.8</td>
<td>79.75 ± 11.6</td>
<td>0.677</td>
</tr>
<tr>
<td>Symptom duration, months</td>
<td>11.75 ± 8.2</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Symptomatic leg</td>
<td>Right, 2; left, 2</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Dominant leg</td>
<td>Right, 3; left, 1</td>
<td>Right, 4</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: PFPS, patellofemoral pain syndrome; n/a, not applicable.

Two sample t-tests used.

### 3.2 Hip Muscle strength

There were no statistically significant differences in mean peak normalized hip strength between the symptomatic and asymptomatic legs of the subjects with PFPS (Table 2). Analysis of the hip strength of the dominant and non-dominant legs of the controls showed no significant differences, as seen in Table 3. The PFPS group did not appear to have generally weaker hip abductor or lateral rotator strength compared with controls, as no statistically significant differences were found between symptomatic legs of patellofemoral pain subjects and randomly selected legs from control subjects (Table 4).

**Table 2.** Comparison of mean peak hip strength normalized to body weight (kg) between the symptomatic legs and asymptomatic legs of patellofemoral pain subjects (mean ± SD).

<table>
<thead>
<tr>
<th></th>
<th>Symptomatic Leg (n=4)</th>
<th>Asymptomatic Leg (n=4)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abduction</td>
<td>.206 ± 0.05</td>
<td>.213 ± 0.06</td>
<td>0.572</td>
</tr>
<tr>
<td>Lateral rotation</td>
<td>.205 ± 0.07</td>
<td>.234 ± 0.07</td>
<td>0.252</td>
</tr>
</tbody>
</table>

Paired t-tests used.

**Table 3.** Comparison of mean peak hip strength normalized to body weight (kg) between the dominant and non-dominant legs of control subjects (mean ± SD).

<table>
<thead>
<tr>
<th></th>
<th>Dominant Leg (n=4)</th>
<th>Non-dominant Leg (n=4)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abduction</td>
<td>.191 ± .04</td>
<td>.203 ± 0.03</td>
<td>0.321</td>
</tr>
<tr>
<td>Lateral rotation</td>
<td>.200 ± .04</td>
<td>.215 ± 0.06</td>
<td>0.222</td>
</tr>
</tbody>
</table>

Paired t-tests used.

**Table 4.** Comparison of mean peak hip strength normalized to body weight (kg) between symptomatic legs of patellofemoral pain subjects and randomly selected legs from control subjects (mean ± SD).

<table>
<thead>
<tr>
<th></th>
<th>PFPS Group (n=4)</th>
<th>Control Group (n=4)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abduction</td>
<td>.206 ± 0.05</td>
<td>.193 ± 0.04</td>
<td>0.677</td>
</tr>
<tr>
<td>Lateral rotation</td>
<td>.205 ± 0.07</td>
<td>.205 ± 0.06</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Two sample t-tests used.
4. Discussion
This study was specifically designed to measure the differences in hip abduction and lateral rotation strength between the symptomatic and asymptomatic legs of male subjects with unilateral PFPS, and also to compare hip strength with a control group of asymptomatic males. The results showed no significant differences in hip abduction or lateral rotation strength between the symptomatic and asymptomatic legs of male subjects with PFPS. Furthermore, the PFPS subjects did not have generally weaker hip strength compared with the asymptomatic controls. Leg dominance had no relation to hip strength in either group. These findings do not support the hypothesis that males with PFPS demonstrate decreased hip abduction and lateral rotation strength. However, it is possible that hip strength differences do exist but were not detected because of the small sample size and lack of statistical power in this study. If indeed hip abductor and lateral rotator strength is associated with PFPS in males, then the results of this study would not be in agreement with the findings of 4 prior studies where males were included in hip strength testing.8,16,21,42 Dierks et al16 included 5 males and 15 females in a study where hip strength was one of the measurements used to investigate proximal influences on kinematics in runners with PFPS during a prolonged run. Gender matched controls were used. The authors concluded that runners with PFPS displayed weaker hip abductors during running. However, because both groups were gender-mixed and mean strength values were compared, it is not possible to determine the extent of significant differences between the symptomatic males and their asymptomatic counterparts. Similarly, Boling et al8 studied a mixed gender group of 7 male and 13 females with PFPS and compared concentric and eccentric torque of the hip musculature compared with matched controls. The patellofemoral pain group was weaker than the control group for peak eccentric hip abduction torque and average concentric and eccentric hip external rotation torque. Again, it is not possible to differentiate between the symptomatic and asymptomatic males since the groups were looked at as a whole. Nakagawa et al42 investigated the frontal plane biomechanics of 80 recreational athletes distributed into 4 groups of 20 subjects: females with PFPS, males with PFPS, asymptomatic females, and asymptomatic males. Isometric hip abductor torque was one of the factors which were measured and compared. Males with PFPS showed a decreased capacity to generate isometric hip abductor torque compared with asymptomatic males. However, the authors did
not find this result important enough to draw specific conclusions. Finnoff et al\textsuperscript{21} found that runners who developed patellofemoral pain (PFP) appear to lose hip abduction and lateral rotation strength compared to their pre-injury strength. Yet, out of 55 males and 45 females, only 2 males and 3 females developed PFP, which is a very small cohort.

In contrast, the results of 2 prior studies are in agreement with the results of this current study.\textsuperscript{41,45} Piva et al\textsuperscript{45} included 13 males and 17 females with PFPS, plus age and gender matched controls, in their investigation of hip strength. No differences were found in isometric hip abductor or lateral rotator strength between the groups. Nakagawa et al\textsuperscript{41} looked at gender differences in trunk, pelvis, hip and knee kinematics, hip strength, and gluteal muscle activation during a single-leg squat in subjects with PFPS compared to controls. Eighty subjects were divided into 4 groups: 20 males with PFPS, 20 male controls, 20 females with PFPS, and 20 female controls. There were no differences in eccentric hip lateral rotation torque between the PFPS males and the control males. This lack of decreased strength is in agreement with the findings of Piva et al\textsuperscript{45} and with this current study. However, the small sample sizes and heterogeneity of methods used in the 3 studies, make it difficult to locate any trends.

Even though the cross-sectional design of this study does not allow for causality to be inferred, the results raise questions concerning possible gender differences involved in the cause and/or effect of PFPS. Since hip abductor and lateral rotator dysfunction is theoretically believed to increase adduction and medial rotation of the femur during weight-bearing activities,\textsuperscript{35,46,51} and if males with PFPS do not have decreased strength in these muscles, other possible reasons for PFPS in males should be looked at. In a recent study, Willy et al,\textsuperscript{63} found that male runners with PFP demonstrate different mechanics during running and single leg squatting, compared with both females runners with PFP and with healthy male runners. These males with PFP ran and squatted with greater dynamic knee varus than healthy males, and with less hip adduction compared to females with PFP. Excessive dynamic knee varus may be a clue as to why certain males present with PFP, as genu varum has been identified as a risk factor for PFPS.\textsuperscript{33,57} Gender differences in muscle strength, biomechanics and neuromuscular activity may therefore need to be considered when designing clinical treatments for males and females with PFPS.
This current study has limitations, primarily due to lack of study time and resources, the most obvious being the small sample size. Another limitation is that the tester worked without assistance and, while holding the dynamometer in place, could therefore not always see whether the subject made any compensatory body movements to increase force by using other muscle groups. Furthermore, the tester was not blinded to group division or to the subject’s symptomatic and/or dominant leg. However, in order to minimize potential bias, standardized measurement protocol\textsuperscript{11,21,31,58} and a reliable strength measuring instrument was used.\textsuperscript{30,52,58} Not having taken leg length into account could also have been a confounding factor since the length of the leg, acting as a lever arm, effects muscle strength. Fortunately, all subjects were similar in height (range 178–190 cm). Also, this study relied on self-reported leg dominance, body weight and height. A greater accuracy of data may have been achieved by measuring each subject’s body weight, height and leg dominance with standardized instruments at the time of testing.

Despite the limitations of this study it is, to the current author’s knowledge, the first to exclusively measure hip abductor and lateral rotator strength in a cohort of males with PFPS, and may thus contribute to the growing body of knowledge in this area and generate questions for future studies. It is possible that the data from this pilot study can be used as a basis for further investigations. Future research should address the deficits of this study. It may also be advantageous to design a new study with sport-matched male subjects, since different physical activities require different demands on hip muscle strength. Using straps to hold the hand-held dynamometer in place instead of a tester, as done in other studies,\textsuperscript{7,16,28} would eliminate the influence of tester strength on the measurements.\textsuperscript{61} Additionally, testing the strength, and possibly the flexibility, of other proximal muscles, such as hip extensors, flexors, adductors and medial rotators should be included and compared with controls, in order to acquire a more thorough base of knowledge. Future research should even evaluate other factors which may influence the occurance of PFPS in males, such as concentric and eccentric strength, kinematics, biomechanics, and neuromuscular activity. For such studies, instruments such as isokinetic dynamometers and EMG may be applied.
5. Conclusion

Males with PFPS do not appear to have decreased hip abduction and lateral rotation strength. However, the sample size was too small for conclusions to be drawn. This study can be used as a preliminary step in gathering evidence about factors affecting PFPS in males, which may in turn shed light on appropriate clinical treatments. Future studies are warranted.
References


Appendix A: Flyer used for recruitment

Har du ont i främre delen av ett knä och vill delta i en studie?


**För att delta i studien behöver du:**
- vara frisk, fysiskt aktiv man/pojke mellan 16 – 40 år gammal
- ha smärta i främre delen av ett knä (ej båda knäna), omkring knäskålen
- ha smärta som har kommit gradvis och inte i samband med ett skadetillfälle
- ha smärta i minst 4 veckor
- ha ingen känd knäskada som t ex., ledband/sen/meniskskada, eller motsvarande.
- inte tidigare opererat knäna eller höften
- inte skadat höften, ryggen eller foten under de senaste 8 veckorna
- ha knäsmärta i samband med minst två av de följande aktiviteter:
  - jogging/löpning
  - trappgång uppför och/eller nedför
  - gång på lutande underlag
  - huksittande
  - långvarig sittande med böjda knän

Totalt tar det ca 20 – 30 minuter att fylla i ett frågeformulär samt genomgå en knäundersökning och höftstyrkemätning. Mätningen är kostnadsfri, görs bara en gång och äger rum på **Mörby vårdcentral, sjukgymnastmottagningen**.

Mätningarna är enkla att utföra, smärtsamma och du får resultaten direkt.

**Om du vill delta och/eller få ytterligare information, ring direkt till**
Debbie Strand, sjukgymnast på: 070-403 66 42
eller ring till sjukgymnastmottagningen på Mörby vårdcentral: 08-587 543 57

Debbie Strand, legitimerad sjukgymnast, magisterstudent
Epost: ds222fw@student.lnu.se   Mobil: 070-403 66 42

Handledare: Anna Jansson, Epost: anna.jansson@fhi.se
Appendix B: Questionnaire

Frågeformulär till dig som deltar i studien ”Hip Strength in Males with Patellofemoral Pain Syndrome” (Höftstyrka hos män med patellofemoral smärtssyndrom)

Födelseår (år/månad/dag): ______________
Längd (i cm)__________
Vikt (i kg)__________

1. Vilken idrott utövar du?__________________________
2. Vilken idrottsnivå: motionär eller elit (elit = landslaget/proffs)?________________
3. Vilket är ditt dominanta ben (om du skulle sparka en boll, till ex.)?______________
4. Vilket knä har du besvär med, höger eller vänster?___________
5. Hur länge har du haft smärta (i månader)?_______
6. Fick du smärta i samband med en specifik händelse, eller kom smärtan smygande?
   Beskriv hur smärtan började:
   _______________________________________________________________________
   _______________________________________________________________________
   _______________________________________________________________________
7. Har du även ont i en höft, bäcken, ryggen, ett underben eller en fot?____________
8. Har du opererat ett knä eller båda knäna någon gång?____________________
9. Har du opererat en höft, fot, ett underben, eller ryggen någon gång?___________
10. Har du skadat en höft, fot, ett underben eller ryggen under de senaste 8 veckorna?____
11. Har du haft en knäskada såsom ledbandskada, broskskada, korsbandskada, fraktur,
    annat?______________________ Om ”ja”, för hur länge sedan?____________________
12. Har knäskålen gått ur led någon gång?_______
13. Kryssa in aktiviteter som framkallar smärta:
   ☐ Jogging/löpning
   ☐ Trappgång uppför
   ☐ Trappgång nerför
   ☐ Långvarig sittande med böjda ben
   ☐ Gång uppförssbacke
   ☐ Gång nerförsbacke
14. Har du träffat en läkare, sjukgymnast, naprapat eller liknande för din knäsmärta?

15. Ringa in där du har smärta på teckningen nedan:

16. Hur intensiv är smärtan, som värst?

Markera med ett kryss på linjen nedan. Längst till vänster = ingen smärta och längst till höger = värsta tänkbara smärta.
Appendix C: Informed consent

Förfrågan om deltagande i studie ”Hip Strength in Males with Patellofemoral Pain Syndrome” (Höftstyrka hos män med patellofemoralt smärtsyndrom)

Jag är sjukgymnast och gör ett magisterprojekt om höftstyrka hos män/pojkar med näsma i främre delen av ett knä, omkring knäskålen. Tidigare forskning har visat att kvinnor med främre knäsmarta ofta har svaga höftmuskler, samt att träning av dessa muskler kan ha en positiv effekt. Det finns dock få studier gjorda på män. Syftet med mitt projekt är att undersöka om även män/pojkar med främre knäsmarta har svaga höftmuskler. Om detta är fallet kan höftträning gynna även män med främre knäsmarta.


Att delta i detta projekt är helt frivilligt. Du kan när som helst avbryta din medverkan utan att ange skäl och utan att detta i så fall påverka din övriga behandling. All information om dig kommer att behandlas konfidentiellt och ingen enskild individ kommer att kunna identifieras då resultaten presenteras.

Om du har frågor angående studien kan du kontakta mig eller min handledare:

Debbie Strand (leg. sjukgymnast, magisterstudent)  epost: ds222fw@student.lnu.se
Anna Jansson (handledare)  epost: anna.jansson@fhi.se

Jag har tagit del av informationen, förstått syftet med projektet samt vad medverkan innebär och samtycker till att delta i detta projekt. Jag är medveten om att jag när som helst kan avbryta medverkan i projektet utan att ange skäl för detta.

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Appendix D: Consent from the head of the clinic

Britt-Marie Pla
Verksamhetschef
Mörby Vårdcentral
Golfvägen 8 plan 5
182 11 Danderyd

Hej Britt-Marie!

Jag är sjukgymnast och gör ett magisterprojekt om höftstyrka hos män/pojkar med smärta i främre delen av ett knä, omkring knäskålen. Tidigare forskning har visat att kvinnor med främre knäsmärta ofta har svaga höftmuskler, samt att träning av dessa muskler kan ha en positiv effekt. Det finns dock få studier gjorda på män. Syftet med mitt projekt är att undersöka om även män/pojkar med främre knäsmärta har svaga höftmuskler. Om detta är fallet kan höftträning gynna även män med främre knäsmärta.


Med vänlig hälsning

Debbie Strand (leg. sjukgymnast, magisterstudent) epost: ds222fw@student.lnu.se
Anna Jansson (handledare) epost: anna.jansson@fhi.se

Godkännes härmed

Namnteckning Namnförtydligande Datum och ort

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