

Patellofemoral Pain Syndrome

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Latest Trends in Management

Patellofemoral pain syndrome (PFPS) is one of the most prevalent musculoskeletal conditions. It accounts for 25-40% of all knee problems seen in sports medicine, and may have a prevalence of around 25% in the general adult population. It also remains one of the most challenging to manage. There is growing evidence that many young PFPS patients (up to 91%) experience persistent pain (21), and some may have a greater likelihood of developing early PFJ degenerative changes (14).

You may be familiar with the 'McConnell programme', which was developed around 30 years ago, and is still popular today. Jenny felt VMO weakness contributed to patellar mal-tracking. She treated this with VMO strength programmes along with patellar taping techniques and other interventions (5). Below is a brief summary of the most up-to-date research on interventions for PFPS.

Taping

There is good research evidence that patellar taping helps symptoms in the short-term. However biomechanical studies have shown it does not do this by altering patellar tracking or improving VMO function. One theory is that taping works by compressing the patella into the groove, thus improving its area of contact, and reducing joint stress (11,20).

VMO retraining

While there is some evidence of VMO wasting in PFPS (8), and delayed onset of VMO contraction (15), research shows that quadriceps weakness is a generalized occurrence, affecting all four groups. It is

still debated if this is cause or effect, as PFPS and knee swelling are potent inhibitors to quadriceps function. There is no evidence that specific VMO training is of any additional benefit to general quads training. While quadriceps strength programmes have proven beneficial in improving symptoms (6), there is increasing evidence that hip / gluteal strength may be of equal or greater importance than quads strength for longer-term PFPS management (22).

Hip strengthening

There is evidence that females with PFPS have significantly increased femoral adduction compared to controls, when running or performing a single leg squat (18,22). Both males and females with PFPS had increased contralateral pelvic drop (18). There is also evidence of delayed gluteus medius onset and a shorter duration of contraction in PFPS subjects (1). Dynamic MRI studies have shown that in certain subjects with patellofemoral disorders, the patella does not track laterally. Rather, the femur internally rotates beneath the patella (10,12). There is also evidence that a group of subjects with PFPS have relative weakness of their hip external rotators and abductors (7). Rehab programmes specifically targeting hip rather than quads strengthening have demonstrated benefits in the short to medium term (7,21).

Biomechanical interventions

It is well recognized that individuals with faulty lower limb biomechanics are at greater risk of ACL rupture. And strategies such as the PEP programme have proven successful in part by targeting these

deficiencies. More recently there has been interest in the role of biomechanical interventions & neuromuscular retraining to reduce PFPS. Video biofeedback, mirror imaging & verbal cueing has been used successfully to assist runners with PFPS to reduce over-striding, pelvic drop and functional valgus, thus improving control and getting the knees wider during running (3,17,18,19).

Pain control and central mechanisms

As with any chronic pain state, there is mounting evidence of potential 'central sensitisation' mechanisms for maintaining pain states and dysfunction. Quads inhibition and inability to adequately load the knee are common long-term consequences of PFPS. There has been recent interest in disinhibitory interventions to help overcome this neural inhibition (4).

Orthotics

Studies have shown inconsistent results for the effectiveness of foot orthoses for treating PFPS. Some studies have shown good short-term results (16). There is most likely a sub-group of individuals who will benefit from this intervention (2,16).

For more information on physiotherapy treatment of this condition, see:

<http://www.cssphysio.com.au/pdfs/0-Rehabilitation.pdf>

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