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Case Study

Male cyclist – ongoing knee pain

Patient Medical History

After installing new cleats on his shoes, this cyclist suffered knee pain on the medial side of his kneecap. When it didn't resolve, he went for physiotherapy however as it did not cure the problem and he eventually underwent an arthroscopy to investigate the problem surgically, where they found no underlying problems. He suffered swelling after surgery, which was drained, once this settled he returned to physiotherapy but found he was still in pain and the exercises were making the problem worse. After a period of 2 years he was advised to the rest the knee completely, however after 6 months the problem remained. An existing client whose knee problem I had resolved referred him to me.

Investigation

When Jonathan came to see me, his injured leg was one-third the size of his other leg. He was unable to straighten his leg pain-free and experienced stabbing knee pain when walking without due care. He had cycled short distances since the initial injury but was unable to come up out of the saddle. He was still doing the exercises prescribed to him, despite the pain it was causing him.

Observations

I reviewed the MRI scans he had initially and noted a build-up of fibrous tissue on the medial, posterior surface of the patella (kneecap). Observation of the patella indicated a lateral rotation with very fibrous tissue where the lateral quads/ITB integrate onto the patella and continuing through to the distal,

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medial patella tissue - indicating an abnormal load through this functional line of fascia. From observation of the rotation of the patella, I concluded that the patella rubbing on the medial condyle of the femur when recruiting the quads could potentially have caused the fibrous tissue, which caused the build up underneath the patella. Rotating the patella into neutral alignment and then contacting the quads, resulted in a pain-free movement through full range, confirmed this.

Treatment plan

The treatment strategy was to initially enable pain-free movement through normal range of movement, to free up the fibrous tissue holing the patella in lateral rotation and rebuilding the media muscle tissue to maintain normal rotation. Our long-term aim was to restore complete functional movement and to rebuild up the injured leg back to normal muscle mass.

Phase 1:

- Reduce pain, use ice and stopped exercises which caused pain
- Free up the adhesions, freed up the knee capsule and reduce the fibrous tissue in the quads and ITB using myofascial techniques
- Reduce the muscle inhibition and improve nervous signal to muscles by using pain free, repetitive non-weight bearing exercises, working within pain free range only
- Improve balance (proprioception)

Phase 2:

- Continue soft tissue work as in phase 1, doing more myofascial work, softening up the connective tissue (fascia) to allow the muscle space to bulk up

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- Correcting the lateral rotation of the patella using myofascial techniques.
- Increase strengthening exercises and get client to correct patella tracking when doing knee extensions.
- Introduction of dynaband exercises.
- Introduction of single leg cycling to improve affected leg and start building strength.

Phase 3:

- Continue soft tissue work.
- Introduce more functional exercises, e.g. step-ups and gradual build up to step-downs.
- Improve biomechanics and looking at weakness in other supporting muscles.

Results

Phase 1:

- As tissues were in a poor condition, treatment to restore them to a more normal state was slow.
- Exercises progressed well with pain management working well.

Phase 2:

- An improvement in muscle mass started to become visible, leg extensions were pain free with patella correction (applied by the client). Still catching at end of range without patella correction.
- One legged cycling starting to become stronger.
- Client started cycling outdoors, but still not able to come out of the saddle.
- Discussed nutrition as an aid to improving muscle generation.

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Phase 3:

- Leg extensions without patella correction were completely pain free - the first time in 4 years.
- Client started cycling and was able to come out of the saddle for short periods of time, which gradually increased.
- Lateral rotation of the patella has almost been corrected.
- Muscle mass on effected leg is almost back to normal, however there was still an area above the knee, which was not showing any signs of bulking up.
- There appeared to be some adhesion between the Rectus Femoris and Vastis Intermedialis. By applying myofascial release with active movement of the limb there was a noticeable improvement in muscle bulk after 2 weeks.
- Work improving biomechanics continuing along with myofascial release on quads and knee capsule.

Treatment outcome

This treatment program took 7 months to complete, using half hour treatments every week. While this may appear to be a long period of treatment and recovery; when compared to the length of inactivity of the client, the degree of muscle wastage and the failure of other therapies to improve the condition; I feel we have made good progress. Jonathan was able to go for a long bike ride after 4 months of treatment and was back out of the saddle within 6 months. He was completely pain free after about 9 months and has returned to full sports activity.