

## Self-Diagnosis for Climbers

### Part 4 – The Knees

This is our last look at self-diagnosis and hopefully you now appreciate the benefits of a systematic approach to managing your own problem.

Remember not to assume that there is one thing wrong with you – there may be a number of things with some perhaps contributing to the failure and some resulting from it. Ask yourself why did this happen and how am I changing things or adapting because of it?

There are a lot of resources out there and many sources of information and no-one can tell how you're feeling or how it is affecting you. Even the best therapist in the world can only make an educated guess but you can track your changes and decide what is right and what isn't.

Be systematic and make notes, write down measurements and changes to allow you to quantify your improvement and to decide whether what you have done/are doing is comparable to another situation you have experienced or may experience in the future. I know of many top climbing coaches who fastidiously record their experiences to be able to best apply it in the future for the benefit of themselves and their clients.

We veer from the previous format for the knee as they are quite problematic to diagnose. There is not much pathology at the knee (arthritis, bursitis, Baker's cysts, plica syndrome, DVTs) so just be aware that any visible, physical changes to your knee apart from swelling and bruising should be checked out by a doctor.



### So, your knees hurt. What now?

Your knees are very good at taking an impact force with a large joint surface they're pretty uncomplicated. However the patella comes along and ruins everything – it's not even really required but does give improved mechanical force in rock overs, leg presses etc.

The huge force put through the knees is why so many of us have knee problems and require minor surgery in our 40s or younger.

The knee joint consists of a flat bottom surface; the tibial plateau upon which sits the meniscus which are cartilaginous scoops that provide shock absorbency and a suitable area for the femur to articulate

against. The upper joint surface is convexed giving only one significant plane of movement: flexion and extension. There is 'tibial torsion' as well i.e. the rotation beneath the femur of the tibia which facilitates locking into hyper extension when standing to reduce energy usage. It is all held together by the ACL/PCL/MCL/LCL – 4 ligaments of much redoubt.

### Where does it hurt?

Knees are very obliging in that the site of pain frequently points to the problem area.

- Front of knee – knee cap cartilage problems; rest, ice
- Outside of knee – LCL; rest, ice
- Inside of knee – MCL; rest, ice
- Feels 'inside' knee; ACL or PCL; rest, ice go to A&E.

If it is above the knee, the back of the knee or feels like the whole knee it is either a multi-trauma or something else such as pain referred from elsewhere – go see your Physio. If it clunks, gives way or locks then this might be a sign of meniscus damage so best to have it scanned – go to see your GP.

### Why does it hurt?

Discounting obvious trauma this is a more difficult question to answer particularly if, as most climbers you engage in a number of different sports. It means that even if the pain comes on whilst running/cycling/climbing it might not be the specific sport that has caused the problem. You need to consider above and below the knee at the different components of *dynamic stability*. This is the control of the knee by the nerves and muscles maintaining perfect tension through range under load. To find the weak link you must consider many things:

- Spine/shoulders: do you have enough rotation when running?
- Glutes; are they firing properly, extending and laterally rotating especially during running? Get a video gait assessment from an experienced therapist to look at your hip/shoulder rotational relationship.
- ITB; joins your glutes to your knee – is this tight or painful?
- Quads; tight from walking up and down hills. Do you stretch it enough?
- Hams; weak in climbers (strong in footballers) but crucial for maintaining body tension through any move and providing stability at the knee.
- Gastrocs (calves); Are these tight? These pull your femur backwards during movement – if they are malfunctioning you lose biomechanical stability.
- Also consider; spine, hip and pelvis relationship. Shoulder, hip and latissimus dorsi tightness. What happens at the ankle and toes and your gender also makes a difference.

If you are a teenager there a number of problems specific to growing: Osgoods Schlatters (mainly in boys) which manifests as pain and a lump under the knee on the front of the tibia. This shouldn't stop you climbing but needs careful management. And Chondromalacia Patella (mainly in girls), which is a softening on the cartilage, not unlike runner's knee brought on by the changing shape of the hips and resultant alteration in biomechanics. This is pain on the front of the knee – avoid heavy rock-overs.



### Simple tests

The first thing you should do is stand in front of a mirror and test your knee stability by standing on one leg and bending your knee (Fig 1). Does your knee move inwards (Fig 2) or wobble a lot? Both signs of instability – it should be pretty rock solid.

Also can you sink your heel into your buttock easily (Fig 3)? You should be able to; if you can't,

stretch your quads.

To test for a tight ITB lie on your side on the edge of a bed (or bouldering mat) and put your top leg behind your bottom leg and it should drop easily below you (Fig 4). If not this could be a factor worth considering; try running the heel of your hand down the side of your leg – does this hurt?

Make sure you can discount tight gastrocs and hams before proceeding by stretching them and pressing your thumb into them – they should be pain free.



If you are biomechanically sound and have suffered no trauma it might be that you have acquired some age related degeneration. Keep exercising and this will slow it down and prolong your career.

### Remember

Knees are knees, we have to accept some wear and tear especially doing what we do and no doubt an operation to 'clean up the knee cartilage' or replace the entire knee will feature in many of our lives. A simple arthroscopy is not to be worried about and a knee replacement is fairly run-of-the-mill but all operations are to be avoided for as long as possible.

Maintain your knee health by continuing to climb, run and bike but possibly consider moderating some activities to deal with specific weaknesses. If you land heavily when running go fell running instead of pounding out the tarmac. Look at your boots – do they need replacing or inserts? Also look at the sole and the way they wear – there should be slightly more wear on the rear and outside edge of the heel but other than that it should be fairly even. Make sure you climb down when bouldering instead of jumping off.

Also have a good coach look at your climbing technique – a small change can make a big difference. My bouldering buddies call drop knees cheating, "get stronger" they say.

They may have a point.

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