

Preventing Knee Pain

Increase Training Gradually

Doing too much too soon, is one of the major causes of sports injury. Knee pain is particularly common in runners who increase training mileage quickly. The best way to avoid this is to follow the 10 percent rule. This simply means that you should limit your training increases to a maximum of 10 percent each week. That can be time, load, mileage or any other parameter.

Strengthening Exercises

Muscle weakness or imbalance is one of the first things physical therapists check for when evaluating knee pain. Such an imbalance can be the source of pain. In addition to specific muscle strengthening of the muscles that support the knee (quads, hamstrings, calf), building core strength improves overall stability which may reduce the risk of injury. The balance of quadriceps to hamstring strength is not 1:1; but closer to 3:2. In general healthy hamstrings can lift 60 - 80% of what healthy quads can do.

Flexibility

Athletes who are less flexible than average may benefit from flexibility exercises. This is more critical in athletes involved in stop and go sports or those that require quick cuts and turns. Improving flexibility in the quadriceps, and the hamstrings are helpful.

Skills Training

Coordination drills and proprioceptive training have also been found to be helpful in protecting the knee from injuries.

One of the best programs for preventing knee injuries, particularly ACL injuries, has been seen in the [Santa Monica ACL Injury Prevention Project \(PEP\)](#). This program, designed based upon the results of a research project, involves a specific routine of exercises and skills training. While designed to address the increase ACL injury rates in female soccer players, the exercises can be used successfully by anyone who wants to avoid knee injuries, as the core concepts are the same for all knee injuries.

Appropriate Footwear

Finally, using the correct footwear is helpful to control excess ankle motion (pronation and supination). Prescribed orthotics may also help with this.