



Knee Pain

One of the most common things that we see in the clinic is Knee Pain. The pain can originate at in the Patella Tendon, the Kneecap or in the Knee Joint itself. Moreover, there are dozens of causes for this pain. Often times the real cause is not even in the knee but by the foot or from the hip. Let's look at a couple of the most common sources of the knee pain and what can be done about it.

Patella-Femoral Pain

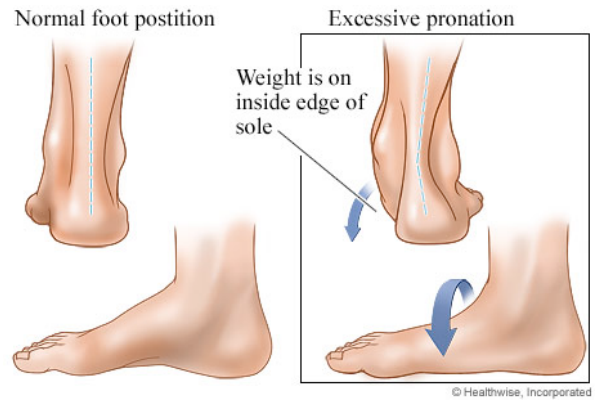
The patella is another name for the kneecap. The patella glides across the top of the knee and it helps the Quadriceps do its job of extending the knee more efficiently. The patella glides in a groove between the in the lower end of the femur and it is subject to some of the strongest forces in the body. If the alignment of the hip or foot is off the tracking of the patella will be off as well, causing uneven wear on the kneecap and pain. Because the alignment is dependent on all of the joints, a weakness or misalignment in any can, and often does, cause pain. So the kneecap is not the problem, it is the knee that is misaligned under the knee. Like a train on the tracks, if the tracks are bent the train may not run very smoothly.



Since there are several causes there are several different types of treatment needed to address these issues. First we address any weakness that is present, particularly in the hip. If we see the knees turning in or wobbling with squatting, balancing on one leg, or jumping, it is time to look at hip strength. The knees simply hinge back and forth while the hip controls rotation, so any excess rotation that is seen is a the responsibility of the hip rotators. If the Gluts don't do their job the kneecap takes a beating. This is most often the case in young women who don't have the strength in the hips and often suffer from knee injuries due to this weakness.

Even if the knee alignment is good, the mechanics of the knee with higher level activities can be a problem. When jumping and landing, the knee and hips should be in balance, with the quads and the gluts dissipating the force. The knees should be in line with the feet but not having the knees go beyond the toes. If either the knees are too far in or too far forward the kneecap will face increased stress and pain. For many this is the only time that the knees are sore or the primary cause of the soreness.

Foot mechanics can be the source of problems as well. The most common foot dysfunction is overpronation or what is commonly called flat feet. This is just the arch lowering excessively to the ground. As the foot falls to the ground, the knee will also turn in, causing improper mechanics. If the person has a flat foot or any associated foot pain it is worth looking at the foot position. Sometimes this can be addressed by trying a shoe that controls this pronation. There are many styles that are available at a good running shoe store. If that is not enough, orthotics can be prescribed to help control these faulty foot mechanics. By controlling the point where the body contacts the ground we can help control the force, and therefore the pain in the knee.



Treatment

See below for a few exercises to address Patella-femoral pain:

- Backward leg raise (hip extension): Lie on stomach with legs straight. Lift one leg as high as possible and hold for 5 to 10 seconds, then slowly lower the leg. Repeat 10 times for 3 sets.
- Hip abduction: Lie on side of uninjured leg, so that the injured leg is on top of the uninjured leg. Lift the injured leg at the hip away from the body. Lift the leg as high as possible and hold for five to 10 seconds, then slowly lower the leg. Repeat 10 times for 3 sets.
- Hip adduction: Lie on side of injured leg, with uninjured leg bent at the knee and foot flat on the floor. Lift the injured leg at the hip towards the other leg. Hold for five to 10 seconds and then slowly lower the leg. Repeat 10 times for three sets.
- Single leg balance and squat: While standing in front of a mirror and the hands on the hips, stand on one foot and balance keeping the knee as steady as possible. Once steady (and pain free) slowly lower yourself and as low as possible while keeping the knee inline with the foot and using the gluts as well as the quads.



About the Author

Kurt Hutchinson is a licensed Physical Therapist who has been with Illinois Bone and Joint Institute since 2002. Kurt is a graduate of Augustana College in Rock Island, IL where he received a BA in Biology. He earned his Master's in Physical Therapy from Northwestern University in 2001. He is active in presenting company in-services and educational case studies on many topics including Anterior Knee Pain. Kurt worked with the varsity athletes at Northwestern University for several years to provide orthotics and running assessments.

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