BACK IN THE GAME

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Rehabilitation information for those who enjoy the sporting life

Patellofemoral Knee Pain

By: Laurie Smith, Physical Therapist

Anterior knee pain is a common complaint of high school athletes, especially females. Pain around the knee cap is the primary symptom. This pain is aggravated by activities such as squatting, kneeling and stair climbing. Clinicians such as doctors, athletic trainers and physical therapists refer to this problem as Patellofemoral Pain Syndrome.

This syndrome can begin with a direct blow to the knee cap from a fall or collision injury sustained during a sport or it can begin without injury. Loss of flexibility, lack of muscle bulk in the thigh, widening hips and looseness of ligaments due to maturation and fluctuating hormones may contribute to Patellofemoral Pain Syndrome. Structural abnormalities such as flat feet, a slightly longer leg on one side and knocked knees are other factors. A steep increase in training combined with one or more of these issues can cause Patellofemoral Pain Syndrome.

An athlete who develops this problem should rest and ice the affected knee to decrease inflammation and pain. Ice should be applied for 10-15 minutes, two to three times per day. The knee should be moved through the pain-free range of motion 10 repetitions, two to three times per day. Stretching of the hamstring, calf, front thigh and outer thigh is key. Stretches should be held for 30 seconds each. Footwear that provides good heel and arch support is also important.

After the pain has resolved, quadriceps (thigh) training is also important. Partial squats should be done with the knees maintained in a visual line over the toes. The athlete should be able to see an equal amount of shoe laces and shoe on each side of the knee as they look down during the squat. Squats should be done to approximately a 30-degree bend in the knee. Straight-leg raise exercises with a cuff weight on the ankle are an excellent way to strengthen the thigh muscle. Strengthening exercises should be done for two to three sets of 10-15 repetitions.

Athletes with recurrent or long-standing anterior knee pain should seek medical evaluation. Structural causes may require custom shoe orthotics to promote better alignment between the foot and the knee to improve tracking of the knee cap. Inadequate training preseason could make an athlete vulnerable to injury. Athletes should continue a training regimen year-round to maintain strength and flexibility and to decrease the risk of injury.

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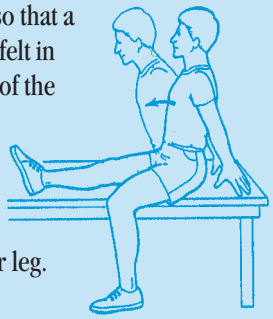
STRETCHES

1. Lie on a surface as shown.
2. Hold on to your ankle and bend the knee so that you feel a stretch in the thigh.
3. Hold 30 seconds each side.
4. Repeat with other leg.

1. Lie on back with knee straight and the other knee bent as shown.
2. Place a 3- to 5-pound weight around your ankle. As you get stronger, increase up to an 8-pound weight.
3. Keep the leg completely straight, then raise it until even with other leg.
4. Hold 2 seconds and slowly lower.
5. Two to three sets of 10-15 repetitions, three times per week.

1. Sit with leg straight on bench as shown.
2. Lean forward, keeping the back straight, so that a stretch is felt in the back of the thigh.
3. Hold 30 seconds.
4. Repeat with other leg.



The Female Anterior Cruciate Ligament (ACL)

By: Brenda Salisbury, Physical Therapist

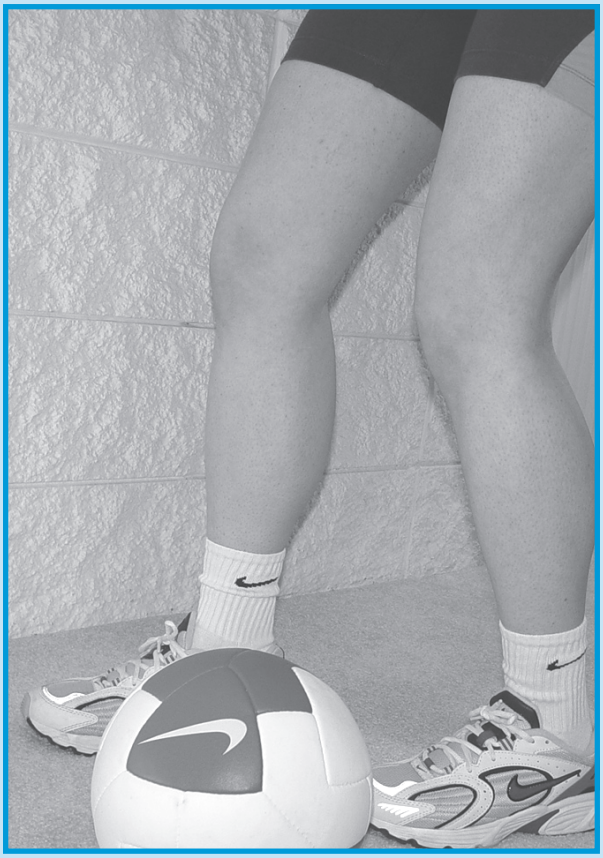
Female athletes are at higher risk for tearing their Anterior Cruciate Ligament (ACL). Females tear their ACL at a higher rate than men, especially in activities and sports that involve awkward landing positions, rapid stopping and cutting such as soccer, basketball, volleyball and skating.

ACL injuries can occur from contact with another player or object, or they can occur without contact. Non-contact ACL injuries are multifactorial and it can be helpful to think of these factors in two categories:

Intrinsic (non changeable): body alignment, ACL size and shape, hormonal influences, and inherited skills and coordination.

Extrinsic (changeable): foot and knee position at the time of injury, coordination between muscle groups, strength, endurance, and the individual's skill level of the activity.

Knee strengthening exercises performed in a functional manner that promote balance and coordination between muscle groups are most important in preventing ACL injuries.



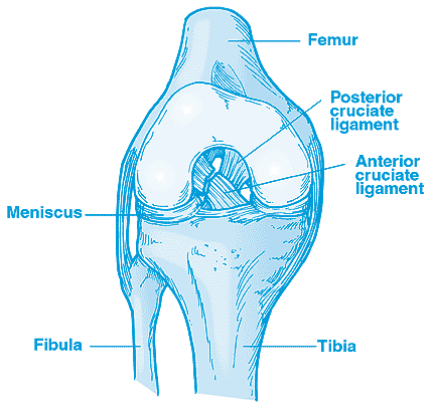
Analyses by videotape of females who have torn the ACL during dynamic activities show a position of "no return" where the ACL stresses to the point of rupture. This position is a straight back, upright position with less forward bend of the hip and knee, momentum forward and then excessive inward angle of the knee (valgus). This often occurs in an awkward landing or during a cutting movement when the female athlete looses balance or has a loss of coordination in play. A much safer body position during sports is one with a more bent hip, knee and a slight lordosis, or curve, in the back. This position allows for better postural awareness and a more coordinated landing.

Female athletes should be encouraged to participate in both in- and off-season conditioning programs that are unique to the female athlete's needs. Balance training and specific activities to coordinate muscle firing of the lower extremity from low back to legs must be included. In addition, retraining of landing or cutting movements must be addressed.

So can this retraining make a difference? A study done by the Division I National Collegiate Athletic Association demonstrated that female basketball players who participated in an ACL training program specific to changing landing and balance reduced ACL injuries by 90% during a two-year period.

To learn how to develop an ACL prevention program for your female athletes or for more information on knee injuries and the female Anterior Cruciate Ligament (ACL), call Marquette General Sports Rehab at 906-225-3186 or 1-800-562-9753 ext. 3186.

Anterior Cruciate Ligament (ACL) Knee Tear



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