

Sports Update II

Last month's column listed several abstracts of interest. This month I will continue with several more abstracts that will:

- help in your understanding of why osteochondritis of the knee occurs where it does;
- help you determine (through the use of a new questionnaire) which athletes with chronic anterior cruciate deficient knees are likely to need surgery;
- help you advise patients having meniscus surgery of which arthroscopic approach might statistically be better;
- give you an appreciation of the likelihood of head injuries in soccer as compared to other sports;
- review the evaluation and treatment options for posterior cruciate injuries of the knee.

Reddy AS, Frederick RW. Evaluation of the intraosseous and extraosseous blood supply to the distal femoral condyles. *Am J Sports Med* 1998;26(3):415.

Osteochondritis dissecans (osteonecrosis) of the medial condyle of the knee is far more common than with the lateral condyle. The researchers examined the femoral condyles of cadaver knees and found that primarily the superior medial genicular artery supplied the medial condyle and that the intraosseous supply was from a single nutrient artery. The superior and inferior lateral genicular arteries supply the lateral condyle. The intraosseous supply consists of an arcade of vessels with multiple branches.

There appears, then, to be a significant difference between the blood supply to the medial versus the lateral condyle that might account for the more frequent occurrence of osteonecrosis of the medial condyle. Additionally, it was found that the femoral tunnel used in posterior cruciate ligament reconstructions might significantly interfere with the blood supply to the medial condyle, resulting in the observed occurrence of vascular necrosis with this procedure.

Mohtadi N. Development and validation of the quality of life outcome measure (questionnaire) for chronic anterior cruciate ligament deficiency. *Am J Sports Med* 1998;26(3):350.

I am often asked how to determine who needs anterior cruciate ligament (ACL) reconstruction versus those who would do well with nonoperative approaches such as exercise and bracing. The standard response is that the less active, older individual is less likely to need surgery. But what about all the others? The author of this study developed a questionnaire specific to quality of life for patients with ACL deficiency. It was passed through several stages of refinement, including input from patients and orthopedic surgeons.

The outcome of the pilot study indicates that this 32-item questionnaire was able to distinguish those patients needing surgery versus those whose quality of life was high enough to avoid surgery. The maximum scoring possible is 100. Patients who needed surgery had an average score of only 31/100 versus those who were treated nonoperatively (average score: 79/100). The

questionnaire uses a 100mm visual analog scale (VAS) format and surveys several areas of quality, including symptoms and physical complaints, work-related concerns, activities and sports, and lifestyle and social/economical factors. The questionnaire is included at the end of the article for your use.

Van Trommel MF, Simonian PT, et al. Different regional healing rates with the outside-in technique for meniscal repair. *Am J Sports Med* 1998;26(3):446.

Although chiropractors do not perform surgery, we are often asked whether surgery should be considered for meniscus injury, and also what type of surgery is best. This article helps define some differences between two common arthroscopic approaches to meniscus repair.

It is well-known that total meniscectomy leads to early degenerative changes in the knee. Unfortunately, even partial meniscectomy will often lead to advanced degenerative changes. Therefore, when possible, meniscal repair is recommended. Unfortunately, healing rates are reported between 50% and 89% with two common approaches used: (1) the outside-in and (2) the inside-out technique.

The advantage of the inside-out technique is that it allows for more consistent suture placement perpendicular to the tear; however, it requires a larger incision and involves more risk of neurovascular damage. The outside-in technique reduces the risk and does not require a large incision; however, it only can address anterior and middle-third tears. This is due mainly to the anterior placement of the needles.

This study confirmed that posterior horn tears of the medial meniscus did not heal well or at all with the outside-in technique. The authors recommend the outside-in technique for all lateral meniscus tears and for anterior and middle tears of the medial meniscus, reserving the inside-out technique for posterior tears of the medial meniscus.

Barnes BC, Cooper L, et al. Concussion history in elite male and female soccer players. *Am J Sports Med* 1998;26(3):433.

Like rugby, soccer utilizes no head protection for its players. The advantage in soccer is that the head can be used to manipulate the ball. Because of this tendency, there has been an attack on this technique (called heading). The accusation is that it leads to head trauma and may lead to serious consequences.

This study indicates that collision with another player accounted for about half of the concussions for men and about 80% for women. The odds of a player having a concussion in soccer over a ten-year period were 50% for men and 22% for women. The authors suggest that the impact from collision would likely be more consequential than from the small impact from a soccer ball. Head injuries account for between 4% to 22% of all soccer injuries (2-3% are concussions). Child and adolescent concussions from football account for up to 10% of all injuries. Comparing concussions as a percentage of all childhood or adolescent injuries, wrestling concussions account for 2%; 11% for horseback riding; 1.9% for rugby; and 1.7% for soccer. For adults, the numbers are 9% of all injuries, 6% of injuries in rugby and 5% of injuries in football.

Harner CD, Hoher J. Evaluation and treatment of posterior cruciate ligament injuries. Am J Sports Med 1998;26(3):471.

This is an excellent review of posterior cruciate ligament injury. Included is a detailed review of treatment outcomes using conservative and surgical approaches, drawings and MRI images of the PCL (normal and torn), review of the accuracy of clinical testing procedures, and small algorithms for acute and chronic PCL tear management.

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