# Point/Counterpoint

*Point/Counter Point is a feature of the newsletter where doctors who have differing opinions are asked to discuss a topic. This issues topic is Surgical versus Conservative Treatment of ACL Injuries .*

As we have become more technically proficient at performing ACL reconstructions with more predictably successful results and with a lower morbidity and complication rate, the number of ACL reconstructions performed has increased dramatically. Surgeons now routinely perform ACL reconstructions on older and less active patients in addition to competitive athletes. In this Point-Counterpoint, Dr. Mitchell Drake and Dr. William Stanish make the case that many patients with ACL tears will do well without surgery, while Dr. Sabrina Strickland argues that results are better for many patients when they are treated with ACL reconstruction.

## Surgical Management of ACL Tears

by Sabrina M. Strickland, MD

Surgical management of ACL reconstruction is a topic that has been at the forefront of orthopaedic discussion and debate for over 30 years now. Recommendations for which patients should be indicated for surgery have evolved over this time period and continue to be modified. In 2010 ACL reconstruction is mandated for patients who participate in cutting sports, patients with instability with ADL's and for patients with repairable meniscal tears. However, why should we operate on anyone else? And, should we be waiting to see if a patient will be unstable with their everyday activity. Recent literature gives us some insight into this decision.

First of all, in the young patient: Lawrence et al presented their work at the 2010 AAOS showing that skeletally immature patients who delay ACL reconstruction greater than 12 weeks have an increased risk of injury to the meniscus and articular cartilage. Risk of arthritis with concomitant ACL and meniscal pathology has been shown to be substantially increased (see below). Secondly, Larsen et al demonstrated that transphyseal ACL reconstruction in patients with open growth plates resulted in good to excellent outcomes in 87% without clinically significant growth abnormalities. Active children should undergo ACL reconstruction in all but rare cases.

Just as young age is no longer a contraindication to ACL reconstruction, old age is similarly no longer a barrier to surgery. Comparable results have been shown between young and older age groups. Many patients over 50 years of age continue to participate in sports such as skiing and tennis.

An argument against ACL reconstruction has pointed out that surgically treated patients have a higher rate of osteoarthritis, however arthritis correlates with meniscal injury. I disagree with this line of reasoning as more active patients are likely to have a higher likelihood for further meniscal injury. Studies show that patients undergoing partial meniscectomy at the time of ACL reconstruction were significantly more likely to develop radiographic evidence of osteoarthritis than those with normal menisci. Since it is not the ACL reconstruction that leads to arthritis hopefully by preventing further episodes of subluxation further meniscal injury will be prevented.

Yet another reason to consider ACL reconstruction is to improve knee proprioception. Knee proprioception has been shown to return to normal with ACL reconstruction at 6 months postoperatively, without any statistically significant difference between the autografts used. Animal studies also support the concept that proprioception is improved in reconstructed knees. Both operatively treated and non-op knees in a cat study were abnormal, with reconstructed and non-reconstructed knees with decreased fast reactive activity in the articular nerves. However, when stability was recovered after reconstruction, the knees showed a more adjusted - although incomplete - muscular reaction.

Research is still being undertaken in order to investigate outcomes between athletes who undergo ACL reconstruction; not all athletes are able to return to sports and ideally rehab protocols can be modified for these patients in order to optimize results. Specific training protocols have been developed to optimally rehab post-op ACL patients in order to get them back to sport and avoid a re-tear of both the operative and contralateral knee.

As the price of health care climbs, more and more attention is paid to the cost/benefit ratio of surgical interventions. Physical therapy is a major contributor to the cost of surgical intervention, however home based programs have demonstrated excellent results. Perhaps adoption of lower cost perioperative programs including rehab, bracing, and hopefully surgical implants and allografts will facilitate access to all individuals for whom ACL reconstruction is indicated. Non-operative treatment certainly is not cost-free as many of these patients elect to use functional braces, often have protracted courses of physical therapy, and occasionally fail conservative care and undergo ACL reconstruction.

**Continued on page 5**

Point/Counterpoint Continued from page 4

# Treatment of Anterior Cruciate Ligament Injuries: Support for Conservative Therapy

by William D Stanish, MD & Mitchell A Drake, MD

Injuries to the anterior cruciate ligament are very common and devastating in our sporting population worldwide. As reported by Frobell et al, in The New England Journal of Medicine, 2010, "at least 200,000 ACL reconstructions are performed each year in the United States, with estimated direct costs of $3 billion (in US dollars) annually". A literature search of ACL injuries reveals evidence that physicians have been treating this injury since as early as 1845.

Nevertheless, there are but few scientifically proven guidelines to direct appropriate treatment regimens. The orthopaedic pantry is bare, in terms of high quality evidence-based studies that have been conducted to support the mandatory deployment of ACL surgical reconstructions. In fact, there is evidence in the literature to support the argument that surgical interventions are not superior to conservative management (of the ACL injury) in the long term. Medical databases and journals are littered with articles on ACL treatment that report contradicting and inconclusive evidence. Recently a number of reviews have been conducted in an attempt to assess all of the available research in order to provide clear guidelines. These reviews have concluded little, often citing the quality of most studies on ACL injury, as poor (Linko et al, Cochrane Database 2005; Andersson et al, Arthroscopy 2009). A 2008 Norwegian study compared non-operative and operative treatment of ACL injuries using a performance-based functional evaluation. Moksnes et al, published their findings in the Scandinavian Journal of Medicine Science and Sports 2009, and found that the conservatively treated patients out performed the surgically treated individuals and concluded that subjects with ACL injuries should be informed of the possibility of success with non-operative treatment. A prospective trial (Fithian et al, published in the American Journal of Sports Medicine 2005) found that patients who had delayed ACL reconstructive surgery had very similar outcomes to those who underwent early surgery. They also reported good success rates with the use of conservative treatment and concluded that it is reasonable to delay surgery until it is clear as to how much disability the ACL deficiency will impose on each patient. This identical sentiment was offered by Frobell and his colleagues in the article published in The New England Journal of Medicine in 2010. A systemic review and meta analysis, comparing early versus late ACL construction, published by Ahn et al, also found that there was no difference in clinical outcome when late surgery was chosen. Many patients were able to carry on with their sport - at a high level - without a surgical intervention.

An important concern with ACL injury is the increased risk of osteoarthritis. Traditional teaching suggested that the ACL deficient patient warranted surgery to avoid the "predictable villain" - which is that of post-traumatic osteoarthritis. However, recent information has suggested that those patients undergoing ACL surgery may, indeed, manifest more osteoarthritis than those who are treated in a non-surgical fashion with a mean follow-up of 6.6 years.

What is crystal clear is that the notion of the athlete having an "isolated anterior cruciate ligament lesion" - is antiquated. Collateral damage at the time of insult, which may include chondral damage, meniscal insult and sub chondral contusion, certainly enter the mix when appreciating the magnitude of the insult to the knee. Kessler et al, found that with an eleven year follow-up of 136 patients, improved knee stability was seen in those patients surgically treated, however the incidence of osteoarthritis was significantly higher in that same group that underwent surgical intervention.

There are a number of clinical variables that must be appreciated. Sports Medicine orthopaedic surgeons, who see a large cohort of ACL deficient athletes, do appreciate that there are those who are copers and function at a very high level. Further, there are those surgeons who feel that the ACL injury has a malignant natural history and thus it must be surgically restored expeditiously - such information is passed on to the athlete and, in most cases, the parent. This contention is without support in the arena of evidence-based medicine. Compelling evidence and high quality randomized control trials have to be conducted to address this issue. Lack of standardized indications, stylized physiotherapy programs, varied grafting material, coupled with personal style of the surgeon, provides an atmosphere ripe for argument and confusion.

Compelling evidence exists to support the claim that ACL reconstruction is no more effective than conservative therapy in the long run. ACL reconstruction should be reserved for that cohort who manifests subjective instability in spite of a robust and properly designed regime of rehabilitation.