

Meeting Abstract

Arthroscopic Reconstruction of Anterior Cruciate Ligament

Reconstrucción artroscópica de Ligamento Cruzado anterior

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The anterior cruciate ligament (ACL) is the most commonly injured ligament in the body for which surgery is frequently performed. It is estimated that 175,000 ACL reconstructions were performed in the year 2000 in the US (1), this number continues to increase. Incidence rates for tears are difficult to assess because some injuries remain undiagnosed. The majority of ACL tears (67% in men and almost 90% in women) occurred without contact. The increased risk of ACL tear in female athletes remains incompletely understood but has been attributed to several factors, including mechanical axis (leg alignment, i.e. with females on average more knock-kneed [valgus]) and notch width (females may have less space for ACL), hormonal factors (increased risk during first half [preovulatory] of menstrual cycle), and neuromuscular control (2).

Besides the immediate associated morbidity and costs, an ACL tear significantly increases the risk for premature knee osteoarthritis [OA]. It is estimated that 50% of patients with ACL tears develop osteoarthritis 10 to 20 years later, while still young.

A careful history and physical exam will frequently allow an accurate diagnosis of an ACL tear without the need for additional testing or evaluation. An “isolated” ACL tear occurs less than 10% of the time, and assessment is needed for associated injuries; the prevalence of associated meniscus injuries is 60% to 75%; articular cartilage injuries, up to 46%, subchondral bone injuries (i.e., “bone bruises” on MRI), 80%; and complete collateral ligament tears (medial or lateral), 5 to 24%.

The majority of patients with a torn ACL can walk normally and can perform straight plane activities including stair climbing, biking, and jogging (3). Surgical treatment is indicated if the patient has a sensation of instability in normal activities of daily living, or wants to resume activities that involve cutting and pivoting; among these are football, soccer, basketball, lacrosse, singles tennis, and mogul skiing. Occupations such as firefighting, law enforcement, and some construction jobs also require an ACL stabilized knee (4-7).

The surgical approach to ACL tears for the last two decades has involved ACL reconstruction, using a graft (a piece of tendon) through tunnels drilled into the tibia and femur at insertion points of the ACL to approximate normal anatomy, with the goal of eliminating ACL instability (8-11). Reconstruction is indicated rather than repair, as randomized trials have demonstrated that ACL repair is no better than nonoperative treatment and that ACL reconstruction significantly improves knee stability and the likelihood of return to preinjury activity over repair alone or repair with augmentation (insertion of a tendon graft or synthetic graft) (12-15). In addition, randomized trials of ACL reconstruction have shown significantly fewer subsequent meniscus tears requiring surgery at two years versus nonoperative management (16-21).

A recent systematic review of 54 randomized clinical trials evaluated a variety of rehabilitation techniques and “assistive devices” (4). Among its conclusions were that: [1] immediate postoperative weight-bearing does not adversely affect subsequent knee function; [2] in the motivated patient a self-directed home therapy program with initial patient education and monitoring is as effective as regular physical therapy visits; [3] the use of continuous passive motion machines, compared to no use, does not improve outcome; [4] the use of postoperative functional bracing versus no brace does not improve the outcomes; [5] closed kinetic chain exercises (exercises with foot planted on ground or force plate, ie leg press or squat) result in better stability than open chain (foot not planted, ie knee extensions); [6] an accelerated rehabilitation program (return to sport at six months) resulted in no increase in knee laxity as compared to a delayed rehabilitation program.

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