ACL – anterior cruciate ligament

ACL injury and physiotherapy approach

Anterior cruciate ligament (ACL) rupture is one of the most common injuries, especially when practicing sports activities (1) . Females have a 4 to 6 times higher risk of injuries compared to males (2). The ACL is an intraarticular and extra-synovial ligament located in the knee, with knee stability as the main function, it is also the primary passive restraint to the tibia anterior translation (3). The primary injury mechanism is non-contact (70%); characterized by knee internal rotation, valgus motion, and downward pressure, especially in landing and change in direction movements (3). Making people participating in sports with landing or plant-and-cut maneuvers, a high risk for ACL injuries.

The goal of ACL surgery, followed by treatment, is to restore the ligament function as the primary passive knee restraint, preserve knee health and return to the previous level of activities and participation (4). In order to achieve a full recovery, physiotherapeutic treatment is essentials (5). Treatment is characterized by manual therapy and a tailor made exercise routine. Manual therapy is very important, especially in the early phases, to prevent scar tissue adhesion and performing passive mobilization (5). There are numerous guidelines for post-ACL surgery, they differ from the surgery technique, the sport perform and the exercises prescribed (6). ACL treatment is divided in four phases (6):

1) Control of post-surgery symptoms (pain, swelling and inflammation), regain muscle strength, restore full extension and 90° flexion.
2) Regain full range of motion (ROM), restore weight bearing and normal gait pattern.
3) Restore pain-free running and functional activities.
4) Sport specific phase if applicable.

1. Sanders TL, Maradit Kremers H, Bryan AJ, Larson DR, Dahm DL, Levy BA, et al. Incidence of Anterior Cruciate Ligament Tears and Reconstruction: A 21-Year Population-Based Study. Am J Sports Med. 2016;44(6):1502-7.
2. Laible C, Sherman OH. Risk factors and prevention strategies of non-contact anterior cruciate ligament injuries. Bulletin of the Hospital for Joint Disease (2013). 2014;72(1):70-5.
3. Purnell ML, Larson AI, Clancy W. Anterior cruciate ligament insertions on the tibia and femur and their relationships to critical bony landmarks using high-resolution volume-rendering computed tomography. Am J Sports Med. 2008;36(11):2083-90.
4. Raines BT, Naclerio E, Sherman SL. Management of Anterior Cruciate Ligament Injury: What's In and What's Out? Indian journal of orthopaedics. 2017;51(5):563-75.
5. Lobb R, Tumilty S, Claydon LS. A review of systematic reviews on anterior cruciate ligament reconstruction rehabilitation. Physical therapy in sport : official journal of the Association of Chartered Physiotherapists in Sports Medicine. 2012;13(4):270-8.
6. Cavanaugh JT, Powers M. ACL Rehabilitation Progression: Where Are We Now? Curr Rev Musculoskelet Med. 2017;10(3):289-96.

Fisioterapeuta Lorenzo Lusvardi

One Clinics Oeiras