***Ligament reconstruction***

Ligament reconstruction has come to play a central role in sport traumatology, thanks also to the growing incidence of this type of injury in sport.
In over 90% of cases, reconstruction is carried out on the ACL, the central hinge in the knee, the absence of which precludes all types of sporting activity involving sudden changes of direction (football, basketball and volleyball).
Two types of biological transplant are currently used in ACL reconstruction:

- the central third of the knee-cap tendon with bone blocks at the extremities
- flexor tendons of the thigh (semitendinosus and gracilis).

Two bone tunnels are used in which the biological transplants are fixed. One exclusive alternative is to use homologous biological transplants such as the quadricipital tendon, or heterological transplants, from the body of a deceased donor.
The correct execution of the operation, when combined with an appropriate rehabilitation programme, allows for a full return to the sport in question.

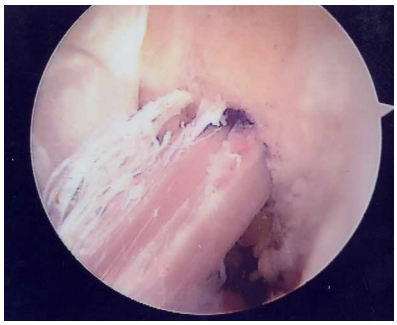
**Ligament lesions**

An increasingly common pathology due to a growing incidence of sport and road trauma. Not all patients with a ligament lesion require reconstructive treatment: factors including intensity of practice, arthrosic conditions of the joint and knee alignment are taken into consideration during assessment.
Conservative treatment aims for full recovery of muscular and articular activity, but does not lead to an objective improvement in terms of stability/laxity. The aim of ligament reconstruction is to restore correct and physiological articular stability in order to prevent joint collapse (extremely frequently the cause of further joint lesions affecting cartilage and meniscus) and reduce the development rate of arthritis caused by increased “play” in the joint, which may also affect individuals who do not have the acute experience of articular collapse. The field has expanded in terms of age-range and intensity of sporting activity, and is therefore no longer restricted to young individuals who do sport regularly. The clearest negative example is the identification of extremely advanced arthritis in subjects that have engaged in damaging sport or work and display significant ligament laxity that was never seen to, or was treated without achieving satisfactory results.
Over 90 % of cases require the reconstruction of the Anterior Cruciate Ligament (ACL), the knee’s so-called central hinge, without which all sports involving sudden changes of direction (football, tennis, basketball and volleyball) are not possible.
In ACL reconstruction two types of biological transplant are primarily used:

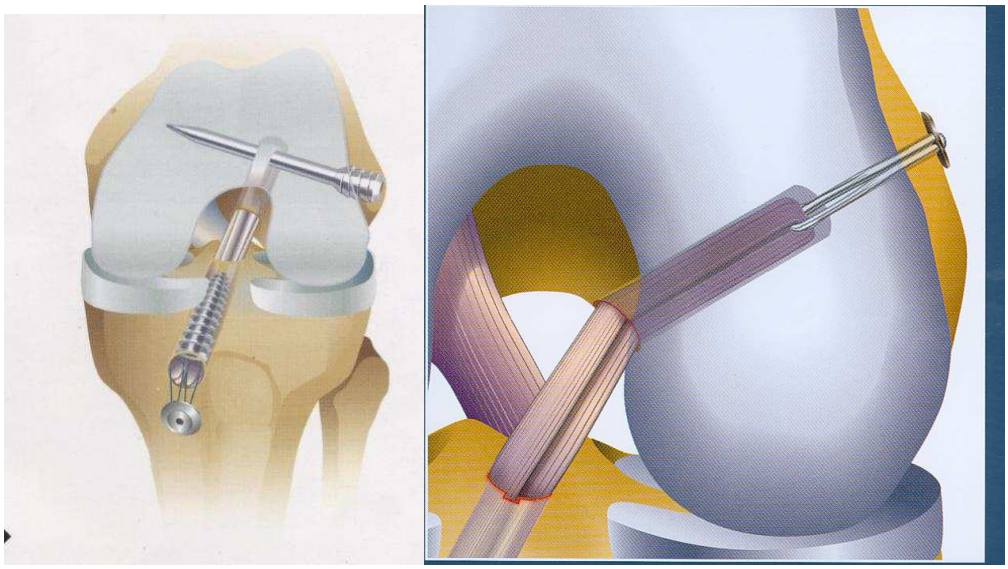
a) the central third of the knee-cap tendon with bone blocks at the extremities
b) the flexor tendons of the thigh (semitendinosus and gracilis).

One exclusive option is the homologous (from the same patient) or heterologous (from a donor) biological transplant, e.g. of the quadricipital tendon. Techniques include the creation of bone tunnels in the tibia and the femur, inside which pro-ACL tendon transplants are fixed. More recent alternatives involve the creation of a double tunnel in the femur and the tibia which aims to recreate the double bundle which comprises the ACL. A correct technical execution of the operation combined with a suitable rehabilitation programme can lead to a full return to the sport in question.
Of extreme importance is the treatment of the so-called associated peripheral lesions (collateral medial or lateral ligament, complex posterolateral ligament) which, when overlooked and not properly treated, represents possibly the greatest cause for the failure of ligament reconstruction.

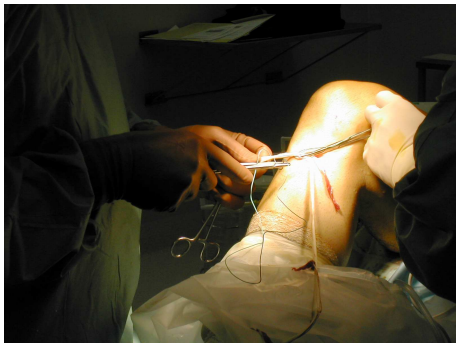
Within this context, recent developments in the mini-invasive technique have resulted in adequate medial or lateral “peripheral” ligament stability with reduced surgical impact.



**Intraoperative image of a lesion of the ACL, and the new reconstructed ligament**



**Schematic image of ACL reconstruction**



**Intraoperative image showing removal of flexor tendons**

QuickTime™ e un
decompressore TIFF (LZW)
sono necessari per visualizzare questImmagine.

QuickTime™ e un
decompressore TIFF (Zip)
sono necessari per visualizzare questImmagine.

**Intraoperative image showing mini-invasive LCM surgery**