



Joint Preservation

Joint preservation involves maintaining the surfaces already present in the joint without replacement or resurfacing with metal or other accommodating implants. This typically involves using biologic materials to replace damaged areas or injured areas in the hope that they would provide a surface that more mimics the normal cartilage anatomy and is biomechanically accepting of loads and is resilient to shearing and other stresses that could cause further breakdown. It is the hope that these procedures done as a preservation type procedure, whether they are cartilage or ligamentous procedures, use either innate structures already present in need for repair such as the ligament that has been torn and then reattaching it to its site of injury or using broken off pieces of cartilage which have been emanating from an injury that are still present within the joint that could be reattached and allow for healing, maintaining that same surface with hopeful healing and then restoration of normal cartilage function. The best scenario certainly would be using one's innate ligaments or cartilage surfaces or meniscal surfaces to repair those injuries and that would provide the best overall outcome physiologically, biologically, and biomechanically. Alternative newer procedures allow that to occur.

Meniscal Repairs

Tried and true procedures such as meniscal repairs, where the meniscus is not removed as would be done in what is termed a meniscectomy where a portion of the meniscus is removed while preserving as much as possible. This still preserves some of the biomechanics, but truly increases the localized contact pressures to the knee even after a small portion of the meniscus is removed. Therefore, in cases that if it is at all possible to be repaired where there is adequate blood supply, tear pattern, and good quality of tissue would be amenable to repair and repair should be carried out. This is typically done in younger individuals, in those with tears closer to the margin where there is rich blood supply, commonly longitudinal tear patterns which restores the normal hoop stress of the knee, although can be achieved in other tear patterns as well, and augmented with substance that biologically could increase their healing potential.

Typically these repairs are carried out in patients that have ligamentous injuries such as anterior cruciate ligament in combination with meniscal tears. The meniscal tears occur secondary to recurrent instability in the knee. These are the ideal candidates or patients for meniscal repair. The repairs then restore the normal anatomy with sutures much like one would suture a cut. These are technically demanding, but may allow for healing of the meniscus which preserves the meniscus which is the true shock absorber and stabilizer of the knee. This is an important structure to maintain if at all possible because it has several functions and with progressive removal can create increased contact pressures, altered distribution of load and decreased stability of the joint.

ACL Preservation Procedures

Newer procedures for injuries to the anterior cruciate ligament can now provide for ligament preservation where using one's injured ligament and repairing it back to the bone can provide for restoration of the normal kinematics of the knee as close to normal as possible using a ligament that is still relatively normal for the majority of the ligament, but has been essentially detached from the femur. These in contrary distinction to those injuries that occur within the substance of the ligament which cannot be repaired or preserved, require reconstructive procedure as would be at a more standard fashion carried out with an anterior cruciate ligament reconstruction where one uses a tissue from a differing site to replace the torn or injured tissue preserving only a small portion of the ligament with the structural portion of the ligament being a new ligamentous structure, either harvested from a different site specifically in the knee or from cadaveric sources (or allograft tissue).

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