

Cartilage Damage to the Tibial Plateau

Tibial plateau fractures are a common intraarticular fracture with controversy over management and generally poor prognosis due to the development of posttraumatic osteoarthritis (PTOA). Our hypothesis is that chondrocyte death occurs at the time of injury and that this is the prognostic feature of the mechanical trauma. The project aims to investigate the damage to the articular cartilage after experimentally produced tibial plateau fractures, mapping the cell death in bovine and human cadaveric models. A model of lateral tibial plateau fracture was created using a pneumatic ram and static weight. Osteochondral explants were analysed using confocal laser scanning microscopy. Results showed blunt trauma causes chondrocyte death which increases as the impact increased. Continuing research is required to confirm results in human cadaveric tissue and the results can be disseminated.

Image:

The 'Mechaphant', a modified ram allowing axial pressure with a valgus force at the joint to create a tibial plateau fracture.

