

*“Optimization of management and treatment of subjects with knee and hip joint degeneration”*

Despite the high success rate of hip or knee joint replacement, 10 to 20% of subjects present disappointing results. The issues currently encountered are: deficient identification of individual success and failure factors during candidate selection; the occurrence of avoidable perioperative complications relating to the surgical procedure; prosthesis implantation not replicating joint biomechanics and not providing natural joint function; the use of surgical techniques that do not accommodate the anatomy or that lack precision; and, finally, the introduction of implants with manufacturing defects or without appropriate follow-up. My research program aims at optimizing the management and treatment of subjects with knee and hip joint degeneration. I favour rigorous scientific approaches for all clinical research hypotheses. The majority of my research protocols are prospective and randomized. To optimize clinical evaluation, I advocate the use of accurate scientific methods, such as the measurement of ion levels in the blood using high resolution inductively coupled plasma mass spectrometry (HR-ICPMS); a walking laboratory with Vicon cameras; a KneeKG biomechanical assessment device; and a dynamic radiostereometric analysis (RSA) device. My main two fields of interest are the assessment of new Total Hip Arthroplasty technologies for younger, more active patients and Total Knee Arthroplasty optimization, including patient selection, perioperative care and surgical technique. Most of my research projects are original and based on the same goal: offering a life lasting forgotten joint arthroplasty to our patients.