

# The Advantages of Knee Prosthesis using Specific Custom-Made Instructions

Osteoarthritis of the knee joint is a degenerative disease which causes destruction of the cartilage and subsequent deformity of the knee joint, resulting in pain, stiffness and functional impairment. With the progression of this condition symptoms become permanent and the functionality of the joints is severely compromised.

Osteoarthritis is caused by various factors and may occur due to a genetic predisposition, metabolic disorders, mechanical, hormonal or biological phenomena, conditions which alter the balance between the synthesis and the deterioration of the cartilage and the subchondral bone. Some specialists have also added the combination of other factors such as overloading of the joint, being overweight, trauma (large, small or repeated), such as that resulting from sports or occupational activity. Other diseases, such as rheumatic diseases or malformation may also progressively damage the joint.

In order for the patient to regain functionality and quality of life in situations of joint destruction or severe functional disability, the only alternative is a total knee joint replacement, known as total knee

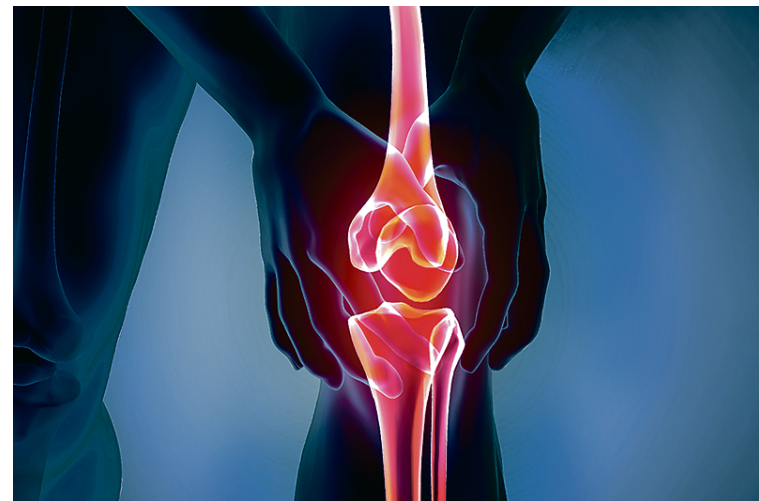
arthroplasty. Due to the evolution of surgical techniques and also the materials used, the knee prostheses surgery is a relatively easy and safe procedure, with satisfying results from the patient's point of view.

In recent years this procedure has obtained even faster, safer and more effective results due to the possibility of the prosthesis being custom made, i.e. the prosthesis is manufactured using personalized specifications, where the patient's individual measurements are reproduced resulting in a prosthesis that accurately reproduces the original anatomy and the individual necessities of each patient.

Accurate images of the patient's knee are obtained via an MRI Scan and a specific X-ray. These are then sent to Switzerland where a surgical plan is drawn up, for each case and each individual patient. This plan is then submitted to

the Orthopaedic Surgeon who is going to carry out the surgery, for approval or correction. Once the surgical plan has been approved by the Orthopaedic Surgeon, the images are sent to a centre in the United States, where two custom made cutting blocks or models, one of the patient's femur and another of the tibia, are manufactured. These models are then sent to our operating theatre to be used on the day of the surgery. There are various advantages of using this technique when compared to conventional surgery, where standardized models are used and where decisions are less rigorous when taken during surgery.

The advantages of this method are various. Due to the precision details there is greater accuracy when planning the surgical procedure, such as the location and orientation of the cuts where



the implants will be placed. Less surgical time and fewer blood transfusions are necessary as well as a reduced hospital stay resulting in a shorter convalescence period and quicker recovery. The reduced surgical aggression of this method also means a safer surgical procedure, particularly in elderly patients, with additional co-morbidities and also in cases where both knees are affected.

The Orthopaedics Team of the HPA is presently using the specific custom-made instrumentation system for all patients who present the suitable conditions for

this method. We are at the moment the Hospital with the most experience in this technique in the country. We have contributed to the disclosure of this method both nationally and internationally, having provided training to orthopaedic surgeons from other hospitals.

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