

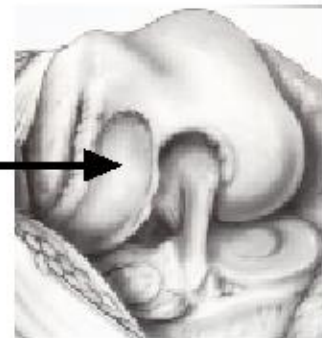
## UNI KNEE ARTHROPLASTY ( UKA )

**UKA** is a resurfacing technique of an only one femoro-tibial compartment that is indicated in the treatment of knee osteoarthritis or ostéonécrosis.

The natural alignment and the ligament balance of the knee are preserved and so, the kinematics of the knee is physiological.

The first UKA have been proposed in USA by MARMOR with excellent 15-20-year survivorships.

When the medical treatments ( antalgic and anti-inflammatory medications, heel wedges, off-loading knee braces, weight reduction, activity modification, the use of ambulatory aids , intra-articular corticosteroid or viscosupplementation injections, and physiotherapy have failed, time is coming to implant a prosthesis to relieve pain and to restore knee function.



cartilage wear

### INDICATIONS

the following guidelines should be considered when planning a UKA

- Age 55 years or older.
- Alignment epiphyseal tibial bow  $< 5^\circ$  of the natural varus.  
in case of malalignment  $>5^\circ$  a High Tibial Ostéotomy must be associated or a Total Knee Replacement may be indicated
- Ligaments Intact cruciates and collateral ligaments.
- BMI  $< 30$
- Opposite compartment : Meniscus : Must be intact  
slight fibrillation, Mild chondrocalcinosis is acceptable.  
Articular cartilage : must be intact.  
Superficial fibrillation is acceptable.
- Flexion Contracture acceptable if  $<$  than  $15^\circ$  due to bony osteophytes .
- Patellofemoral Complete loss of articular cartilage would be a contra-indication.
- Inflammatory arthritis, rheumatoid arthritis, gout and other general arthritic conditions are a contra-indication.



medial arthrosis



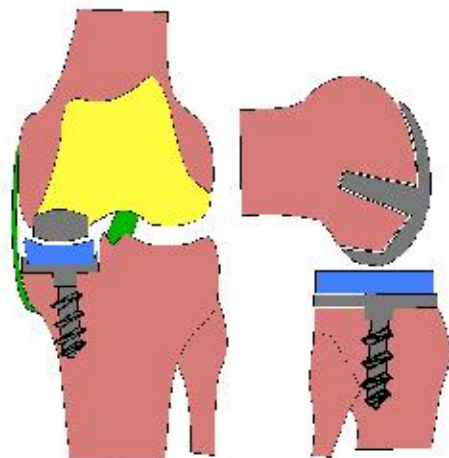
nécrosis (IRM)



lateral arthrosis

## COMPONENTS

The devices are composed of a fixed cemented femoral component and a tibial plateau component ( either metal-back tray fixed to the bone with a screw or a full polyéthylène plateau cimented to the tibial bone ) articulating by the intermediary of a polyéthylène insert replacing the two damaged articular surfaces of an only one compartment.



metal-back with screw



metal-back without screw



cimented full-poly

## SURGICAL TECHNIQUE

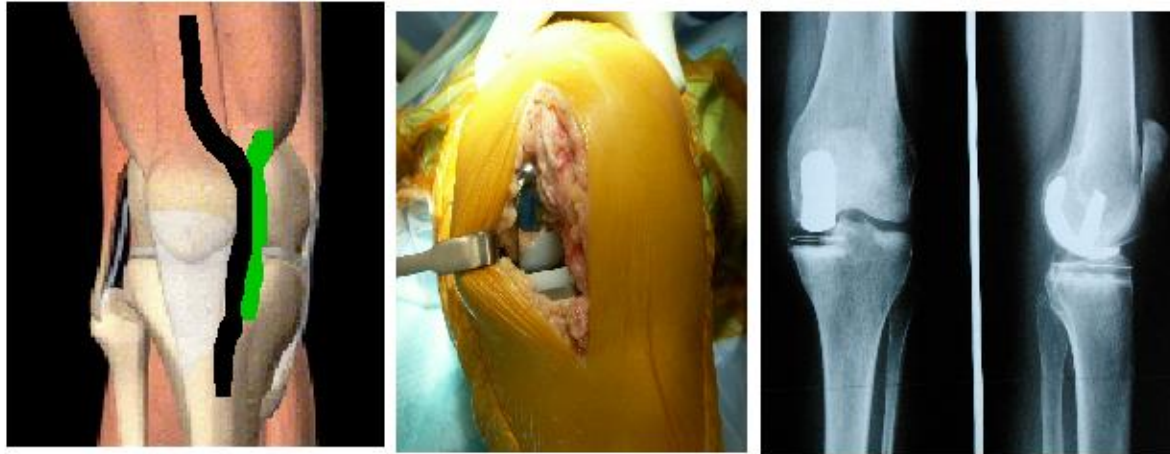
UKA is technically a demanding procedure with a low morbidity and excellent functional results . The surgeon experience and training is important for a good result : a specialist is needed.

One of the advanced technique is **minimally invasive UKA** : It allows less blood loss, less pain, a shorter length of hospitalisation stay and an earlier return to function.

The technique of minimally invasive knee surgery involves many different steps,



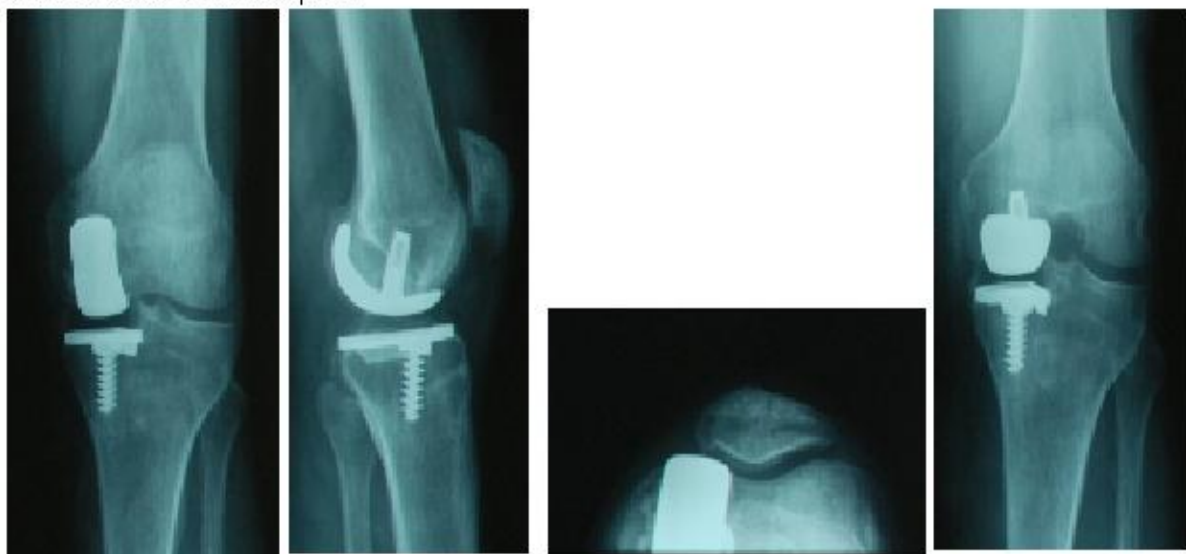
starting with the length of the skin incision ( approximately 6 to 8 cm ) , performing a medial or lateral arthrotomy avoiding incision of the extensor mechanism, only incising 1cm of the vastus medialis fibers if necessary, without everting the patella , using particular retractors and ancillary materials adapted for smaller cutting guides.



Once the bonecuts have been made, final soft-tissue balancing, trial reductions must be carefully completed to ensure adequate positioning, tacking and soft-tissue tension, and the absence of bone or implant conflict.

Implants are then fixed on bony surfaces: cemented or cementless.

Wound closure is achieved with absorbable “vicryl” sutures, a suction drainage and skin closure with staples.



**exemple of medial UKA with cementless tibial plateau at 10years folow-up**

## **CHECK-UP BEFORE SURGERY**

In order to detect vital risk for anesthesiology, and to assess a potential risk of post-operative complication in a short or long term follow-up, a medical questionnaire checking list is needed before the operation , to be planed by the surgeon and his team.

Risk factors influencing complications are :

### factors increasing risk of infection

- **Obesity** is associated with a higher risk of infection. Individuals with a body-mass index (BMI) >35 had a 2.1 times greater risk of infection compared with those with a lower BMI
- **patients with osteonecrosis and rheumatoid arthritis** had a 2.2 times greater risk of infection compared with those with osteoarthritis.
- **diabetis** :
- **previous infection of the joint**
- **arteritis**
- **tooth infection** : a visit to dentist & panoramic dental X-Ray, and treatment of dental problems are necessary to eliminate a potential risk of infection.

### factors increasing risks for medical complications

- American Society of Anesthesiology (ASA) scores > 3 is at risk.
- Previous algo neuro dystrophy may be a recurrent risk .
- Previous deep venous thrombosis is a predisposing factor to recurrent episode

## **POSTOPERATIVE CONSIDERATIONS**

You will stay 7 days in the surgical department of orthopaedics.

### Day of operation

The patients is mobilised at approximately 4 h post-op, under physiotherapist supervision. Straight leg raising exercises are encouraged, from a flexed position of the leg put on a pillow placed under the knee of the operated leg to allow the knee to rest in a fully flexed position.

analgesia shedule plan systems are adapted.

### First postoperative day

Ensuring that pain level is well controlled, the patients undergoes further range of motion, quadriceps, and hamstrings exercises twice a day under control of the physiotherapist. Sitting and walking are started. CPM is used twice a day.

### Second , third, fourth postoperative day

The dressing was reduced to a light non-adherent dressing, and the drainage removed. Walking with a 2 sticks is started.

The patients continued to walk with the assistance of walking sticks. CPM is used twice a day. Active exercises are encouraged.

### fifth and subsequent postoperative days

The patients is encouraged to climb steps, to rollskate while sitting, and to walk safely with two sticks and climb stairs independently.

### Seventh day

wayout of the clinic and go home where exercises of muscles reinforcement, and stability are continued.



## COMPLICATIONS

Even with a careful act performed by perfectly trained team, any complications may happen the same as in all surgical acts. These are exceptional ; The list below is not exhaustive :

- **Infection** is one of the most dreaded complications of total knee replacement. It needs removal of TKA, lavage, drainage, antibiotics and wait for two months before reimplantation of a TKA.

the efficacy of prophylactic measures and risk factors play an important role.  
prophylactic measures: laminar flow, body suits, drains, surgical time (length), surgeon volume, and hospital volume the use of preoperative antibiotics.  
detection and treatment of risk factors: - Obesity, diabetes, pre op treatment of dental or urinary infection.

- **Skin necrosis** should well controlled with adapted local healthcare . Its prevention is realised with a central skin incision. If not controlled, the risk is to transmit an infection to the prosthetic joint. A reoperation is necessary.

- **stiffness** Outcome variation in range of motion exists despite excellent surgical technique, refined implants, and uncomplicated postsurgical recovery. Mobilisation under anesthesia without opening the knee is sometimes necessary at the end of first week if flexion is still inferior to 90° and painful.

- **phlebitis** : preventive measure ( early mobilisation, anti-thrombotic socks, low Weight Molecular Heparin anti-embolic prophylaxis for 6 weeks) and systematic echodoppler control at 7th day allow the risk to be minimize ; in case it happens, an anticoagulation treatment is started and rehabilitation is slowed.

- **Hamstring tendinitis**: it is a bursitis of the tendons sheath of the medial part of the knee that may occur during rehabilitation; it stops with anti-inflammatory medications and eventually a corticoid injection

## LONG TERM FOLLOW-UP

- **wear** is not a short term problem: a regular follow-up control is necessary every three years. Overweight and overuse are favorable factors for bone loosening

- **loosening** is not a short term problem : a regular follow-up control is necessary every three years . Overweight and trauma are favorable factors for bone loosening

- **post-operative requirements**

-Do not overweight to prevent wear and loosening.

-Help with your arms to stand up from a chair, and climbing stairs to lessen the strains on the prosthesis.

-Tell your doctor or dentist that you have a prosthetic knee so that in case of infection he gives you adequate treatment with antibiotics to prevent an infection of the prosthetic knee that may occur even years after your surgery

-Do exercises at home and at least walk 30 mn a day. Sports activities are

possible according to comorbidity, age, range of motion and stability, ; waiting 3 to 6 months after a TKA is the current recommended waiting time for return to sporting ( see special form ).