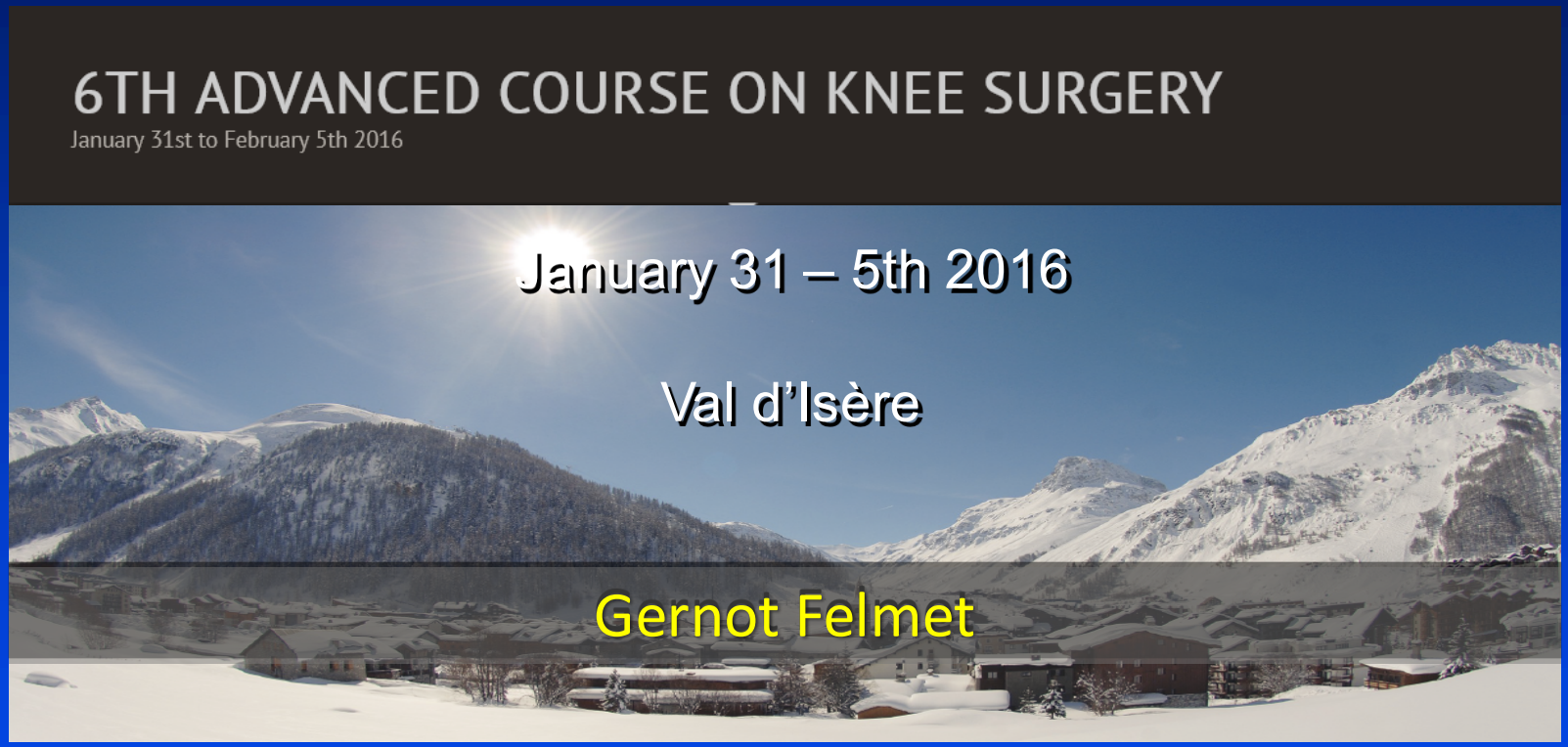
Indications and limits for UKA



ARTICO Sportsclinic & Orthopedic Practice

Villingen-Schwenningen – Germany – Black Forest

Black Forest
South-West of Germany
At the border to Swiss, Austria and France

ARTICO Sportclinic

Spring of
Danube river
in
Donaueschingen

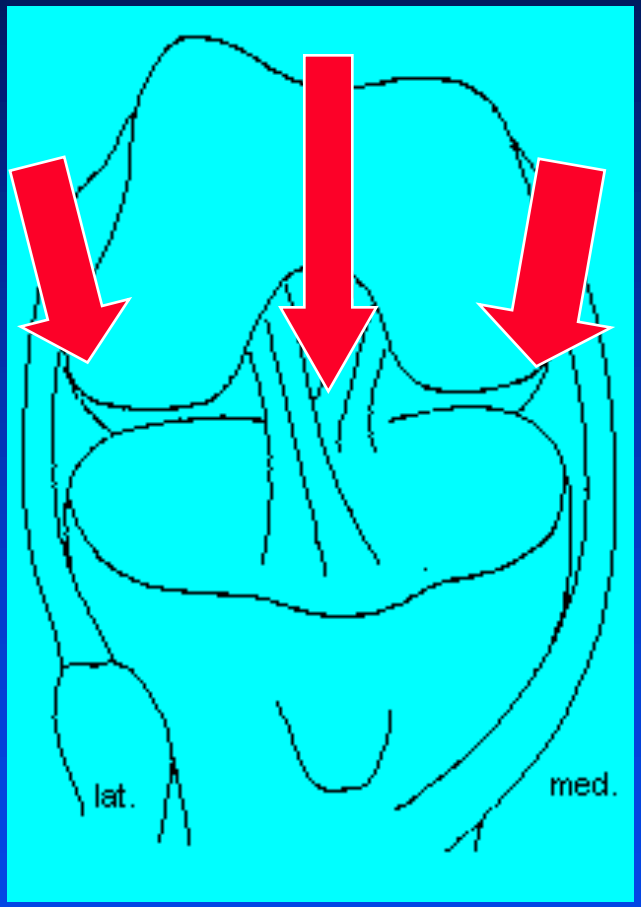
Standing symmetrical on both feet:

- Load acting on each knee: ~ 43% body weight
- During gait >> 2 x - 8 x body weight

> Maquet: loaded force is medial to the knee

Principal forces acting on the knee:

Lateral Muscular Balancing Force



Body center of Mass

Resultant Force

Surgical Options in medial OA Knee

- Arthroscopic Debridement
- Abrasia; Pridie; Microfractuing
- High Tibial valgus Osteotomy (HTO)
- **Unicompartmental Arthroplasty (UKA)**
- Total Knee Arthroplasty (TKA)

HTO / UKA
Contra-Indications

- Inflammatory Arthropathy
- Diseases with focal cartilage deposits
- Unstable Knee
- Advance **Bi**-compartmental Disease
- Bone loss
- Preoperative Flexion < 90°
- Flexion Contracture > 15°

Complications of HTO / UKA

Early:

- Undercorrection
- Loss of Correction
- Intra-articular Fracture
- Peroneal nerve Injury
- Compartment Syndrom
- Delayed/ Nonunion
- Stiff Knee
- Infection
- Deep Venous Thrombosis

physiological beneficial 2° varus

Potential Complications of HTO / UKA

Late:

- Progress of medial degenerative process
- Progress of lateral degenerative process

Varus Deformity

Age of Activity

Elderly → UKA vs TKA

Over 60 Years Inactive → UKA vs TKA

Younger High Demand → HTO vs UKA

Long-Term Results of HTO

Name	No. of Osteotomies	Date	Years Followup	Accept. Funct. Result (%)
Coventry	31	1987	9,4	77
Hernigou	93	1987	10	45
Holden	51	1988	10	70
Keene	51	1989	7,5	73
Morney	33	1989	7,5	73
Ivarsson	65	1990	5,8	80
Rudan	79	1990	5,8	80
Bermann	39	1991	8,5	57
Total	**442**		**8,7**	**61,5**

ANZ J Surg. 2007 Apr;77(4):214-21.

Unicompartmental knee arthroplasty for the treatment of unicompartmental osteoarthritis: a systematic study.

Griffin T[1], Rowden N, Morgan D, Atkinson R, Woodruff P, Maddern G.

Author information

[1]ASERNIP-S, Royal Australasian College of Surgeons, Stepney, SA, Australia.

Abstract

Unicompartmental knee arthroplasty (UKA), total knee arthroplasty (TKA) and high tibial osteotomy (HTO) may all be used to treat unicompartmental osteoarthritis, but they are often used for different patient groups. However, there is considerable overlap in indications for all three options. The aim of this review was to assess the safety and efficacy of UKA compared with TKA and HTO in unicompartmental osteoarthritis. Studies that compared UKA with either TKA or HTO were identified and included for review. For knee function and postoperative pain, UKA appeared similar to TKA and HTO at 5 years follow up. Range of motion was better in UKA compared with TKA. Complication rates after UKA and TKA appeared similar, although deep vein thrombosis was reported more often after TKA.

- There were more complications after HTO than UKA.
- Survival of UKA prostheses was approximately **85-95%**, compared with at least 90% for TKA at 10 years follow up.
- Survivorship for HTO appeared to be **less than 85%.** It was not clear whether there were more revisions after UKA than TKA, but there appeared to be
- fewer revisions in UKA compared with HTO. UKA is considered at least as safe as TKA and HTO. For function, UKA appears to be at least as efficacious as TKA and HTO. The survival of UKA compared with TKA and HTO cannot be determined based on the available evidence.

Long-Term Results of Unicompartmental Replacement

Name	Number	Date	Years	Result(%)
Marmor	60	1988	10	70
Mink	75	1989	7,9	92
Page	92	1989	8	92
Capra	52	1989	8,3	93
Heck, et al.	294	1992	10	91
Knutsen et al.	7649	1992	15	85
Total	**8232**		**9,7**	**87**

Bone Joint J. 2015 Nov;97-B(11):1493-500. doi: 10.1302/0301-620X.97B11.35634.

The clinical outcome of minimally invasive Phase 3 Oxford unicompartmental knee arthroplasty: a 15-year follow-up of 1000 UKAs.

Pandit H[1], Hamilton TW[1], Jenkins C[2], Mellon SJ[1], Dodd CA[2], Murray DW[3].

Author information

[1]NDORMS, University of Oxford, Windmill Road, Oxford OX3 7LD, UK.
[2]Nuffield Orthopaedic Centre, Oxford University Hospitals Trust, Windmill Road, Oxford OX3 7LD, UK.
[3]Nuffield Orthopaedic Centre and NDORMS, University of Oxford, Windmill Road, Oxford OX3 7LD, UK.

Abstract

There have been concerns about the long-term survival of unicompartmental knee arthroplasty (UKA). This prospective study reports the 15-year survival and ten-year functional outcome of a consecutive series of 1000 minimally invasive Phase 3 Oxford medial UKAs (818 patients, 393 men, 48%, 425 women, 52%, mean age 66 years; 32 to 88). These were implanted by two surgeons involved with the design of the prosthesis to treat anteromedial osteoarthritis and spontaneous osteonecrosis of the knee, which are recommended indications. Patients were prospectively identified and followed up independently for a mean of 10.3 years (5.3 to 16.6). At ten years, the mean Oxford Knee Score was 40 (standard deviation (sd) 9; 2 to 48): 79% of knees (349) had an excellent or good outcome. There were 52 implant-related re-operations at a mean of 5.5 years (0.2 to 14.7). The most common reasons for re-operation were arthritis in the lateral compartment (2.5%, 25 knees), bearing dislocation (0.7%, seven knees) and unexplained pain (0.7%, seven knees). When all implant-related re-operations were considered as failures, the

- ten-year rate of survival was 94% (95% confidence interval (CI) 92 to 96) and the
- **15-year survival rate 91%** (CI 83 to 98). When failure of the implant was the endpoint the 15-year survival was 99% (CI 96 to 100). This is the only large series of minimally invasive UKAs with 15-year survival data. The results support the continued use of minimally invasive UKA for the recommended indications. Cite this article: Bone Joint J 2015;97-B:1493-1500.

How I started

1996/7

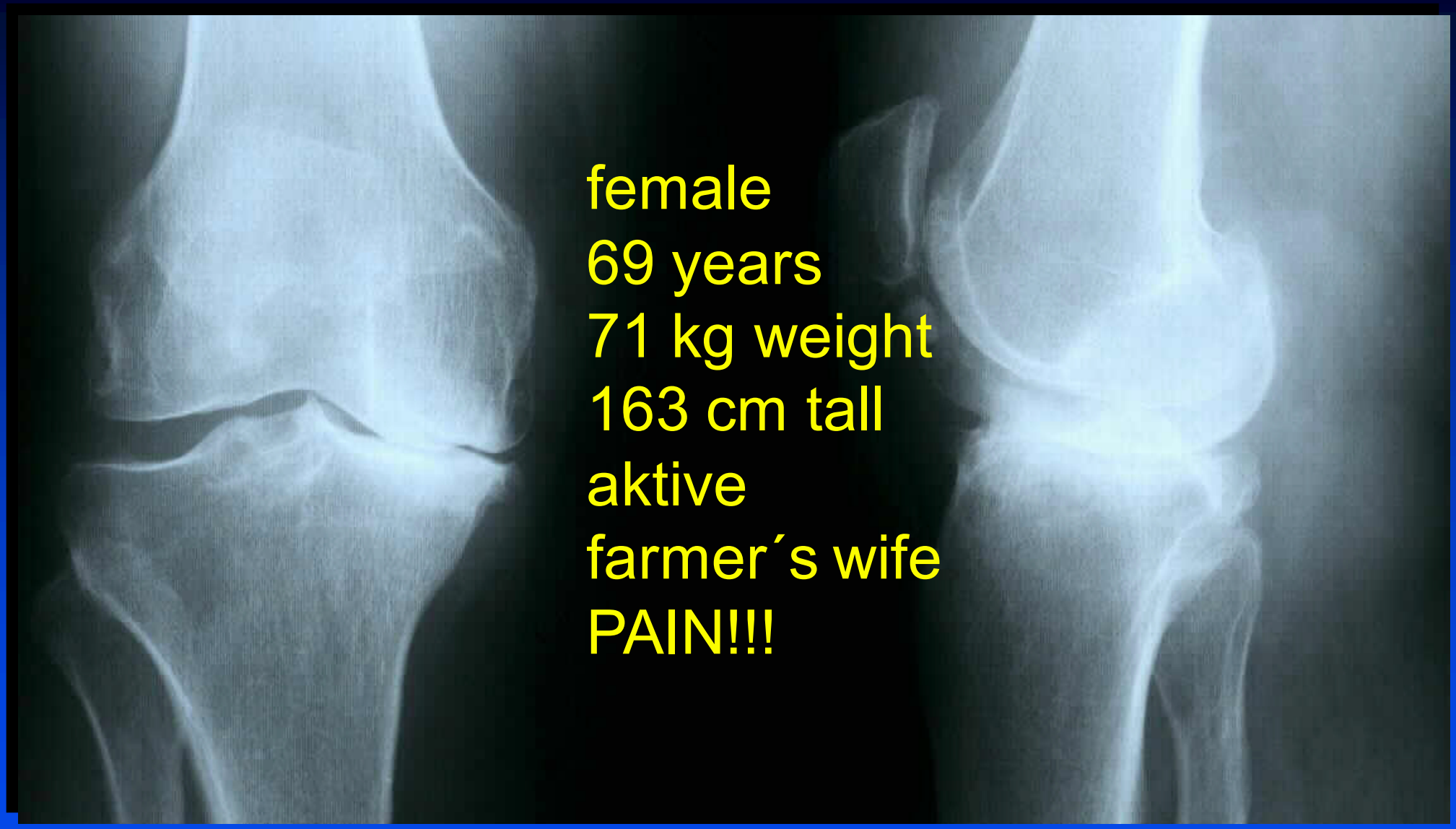
Minimal Invasive Surgical Technique for Unicondylar Knee Arthroplasty

John Repicci, Buffalo
Robert Eberle, Raleigh

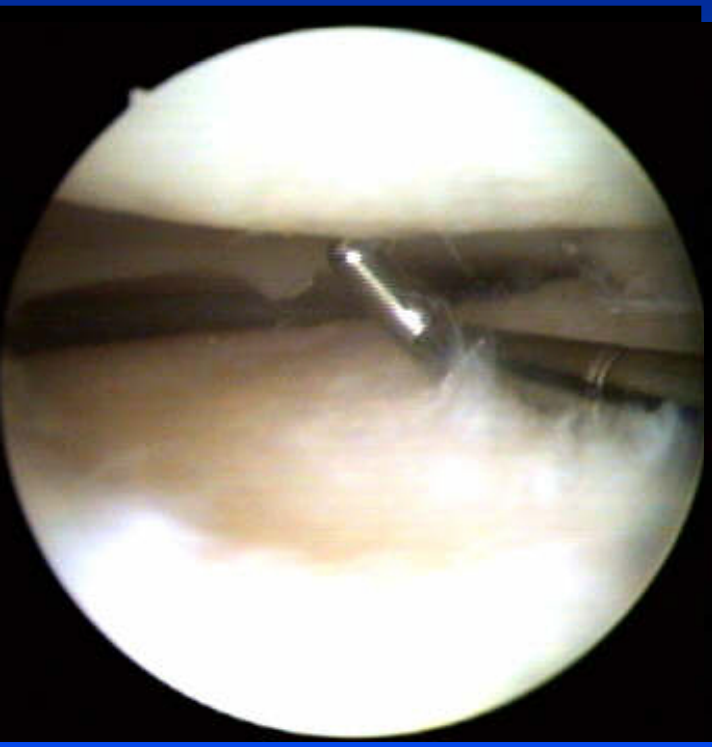
J. o. Southern Orthopedic Association * Vol. 8 No. 1, Spring 1999

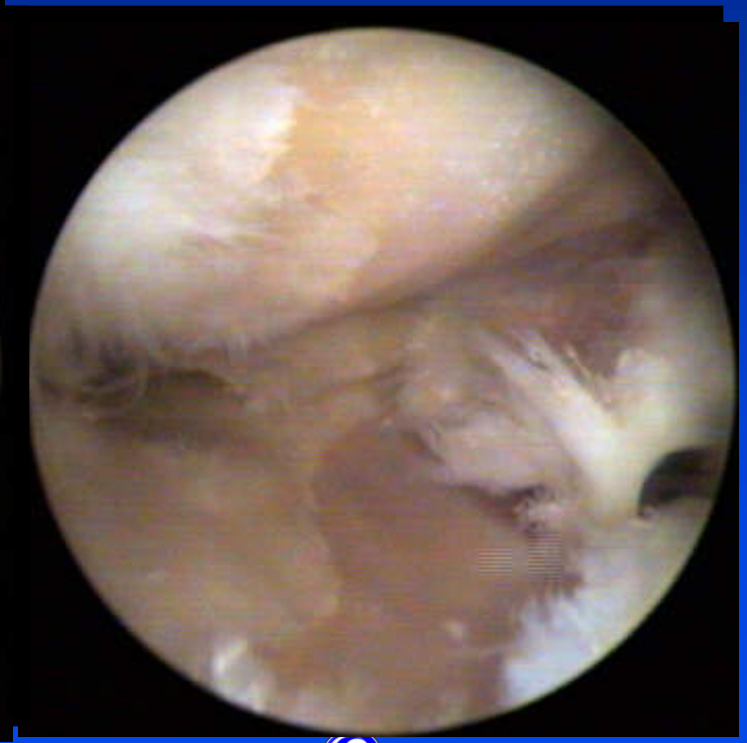
August 1992 - December 1996 >> 700 UKA

- minimal Blood loss < 200 ml
- decreasing morbidity
- less costs, 80% outpatient procedure
- minimal physical therapy
- shorter recovery time
- 90% independent function at 2 weeks

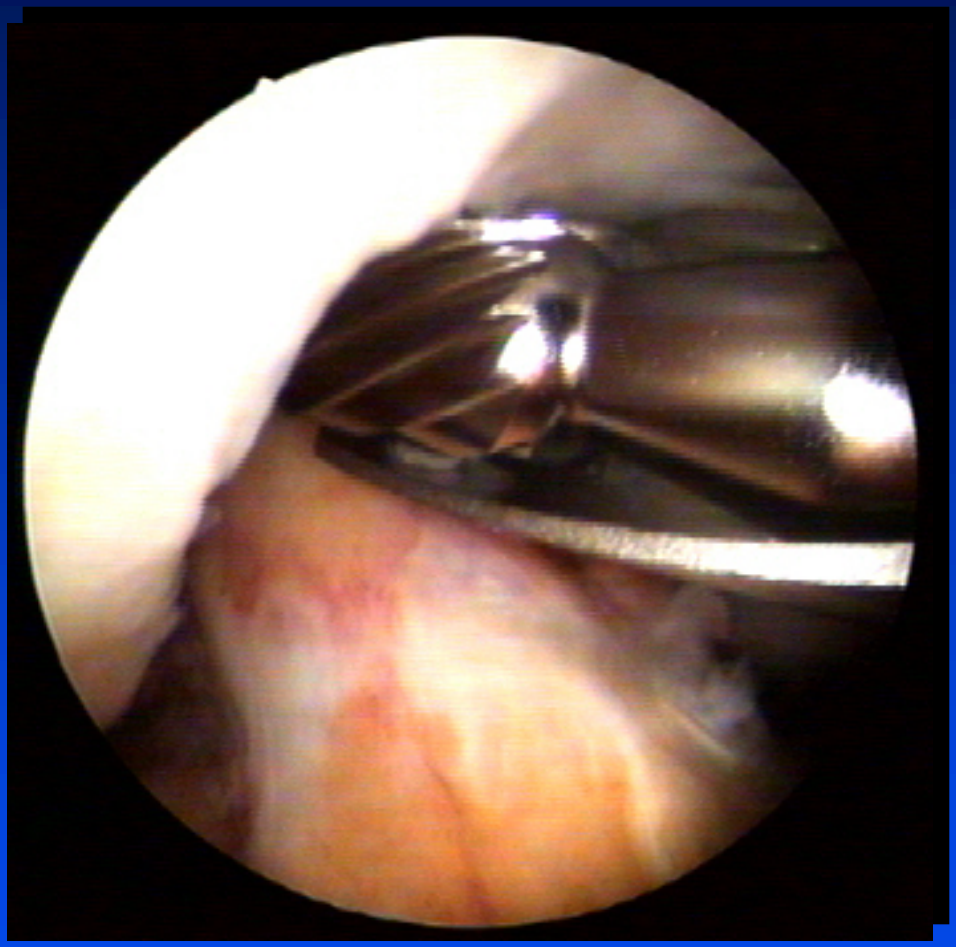

female
69 years
71 kg weight
163 cm tall
aktive
farmer´s wife
PAIN!!!

Arthroscopy

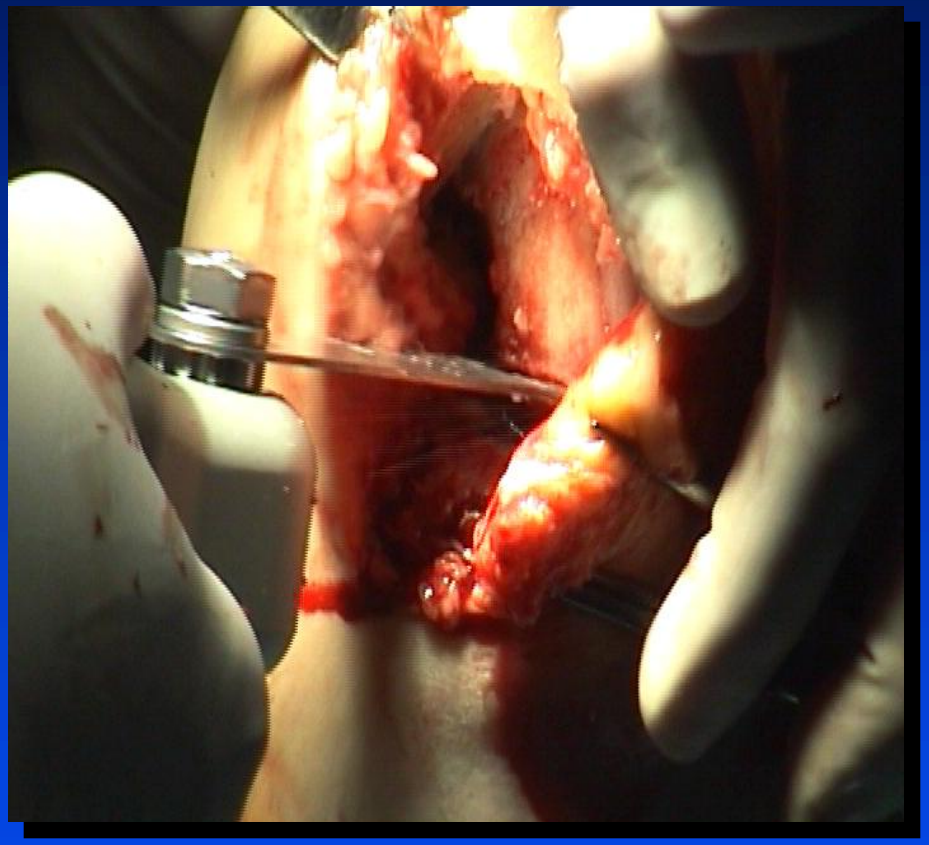


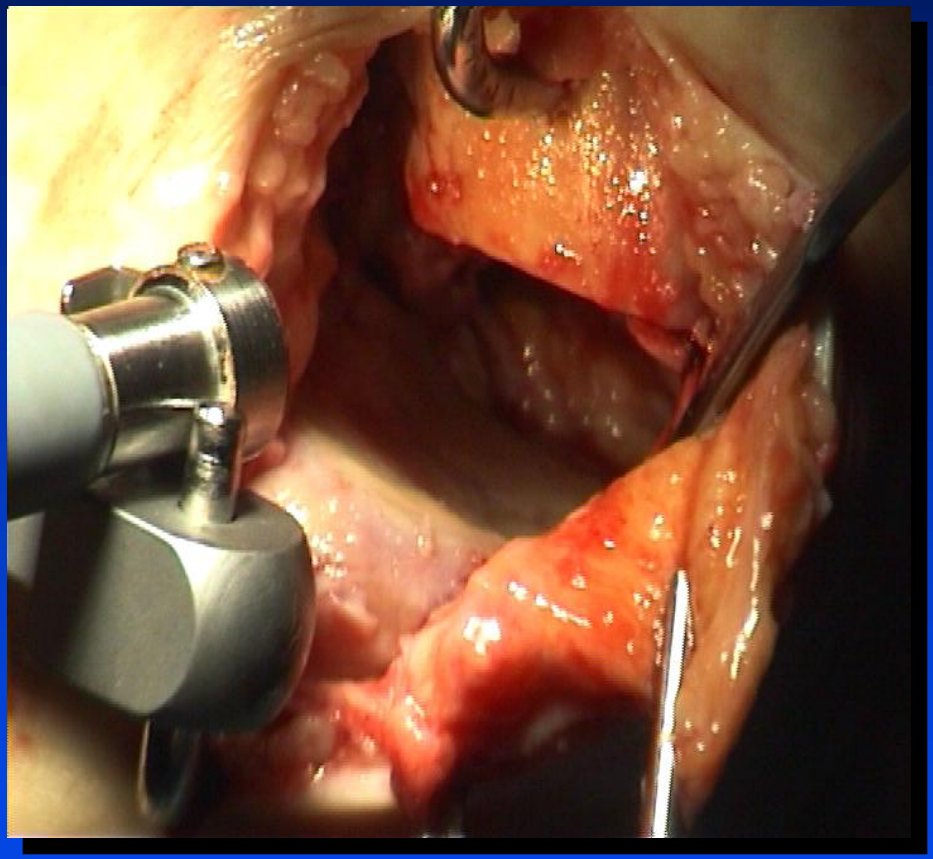


ACL is very important for stability

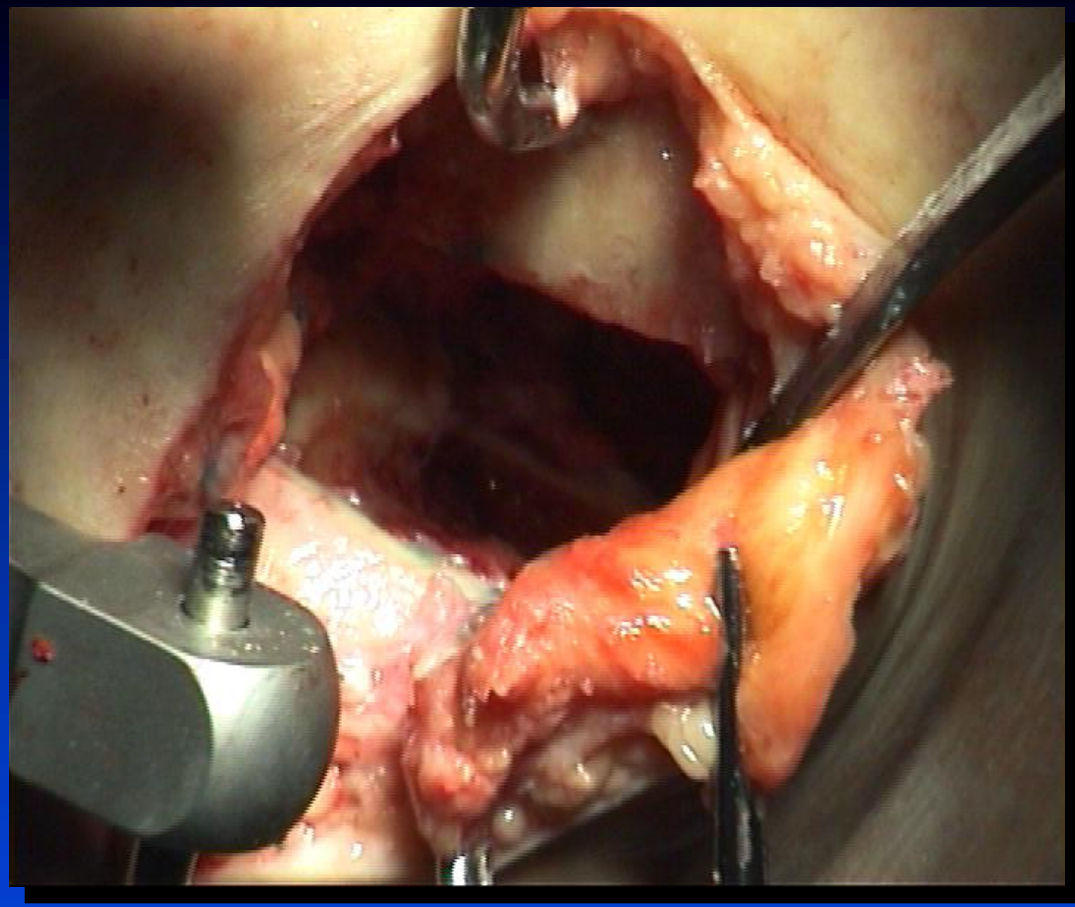


Resection of the posterior Femoral Condyle

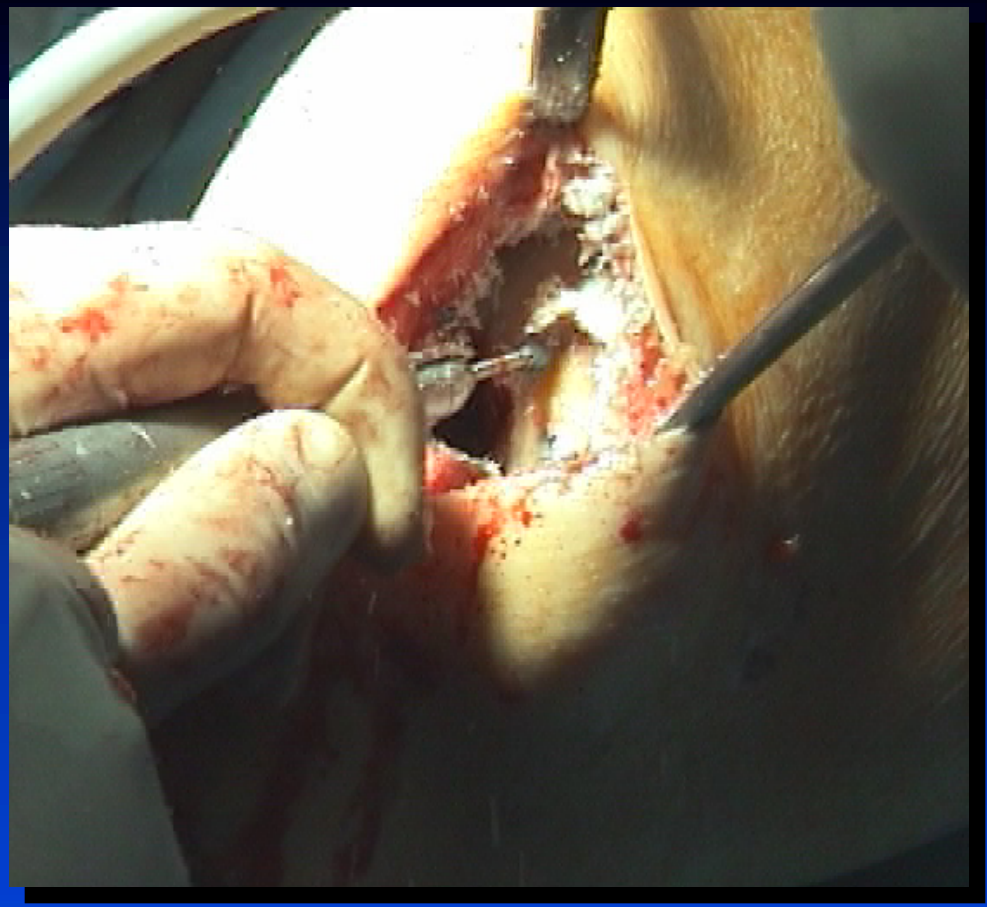




Unicondylar Knee Arthroplasty

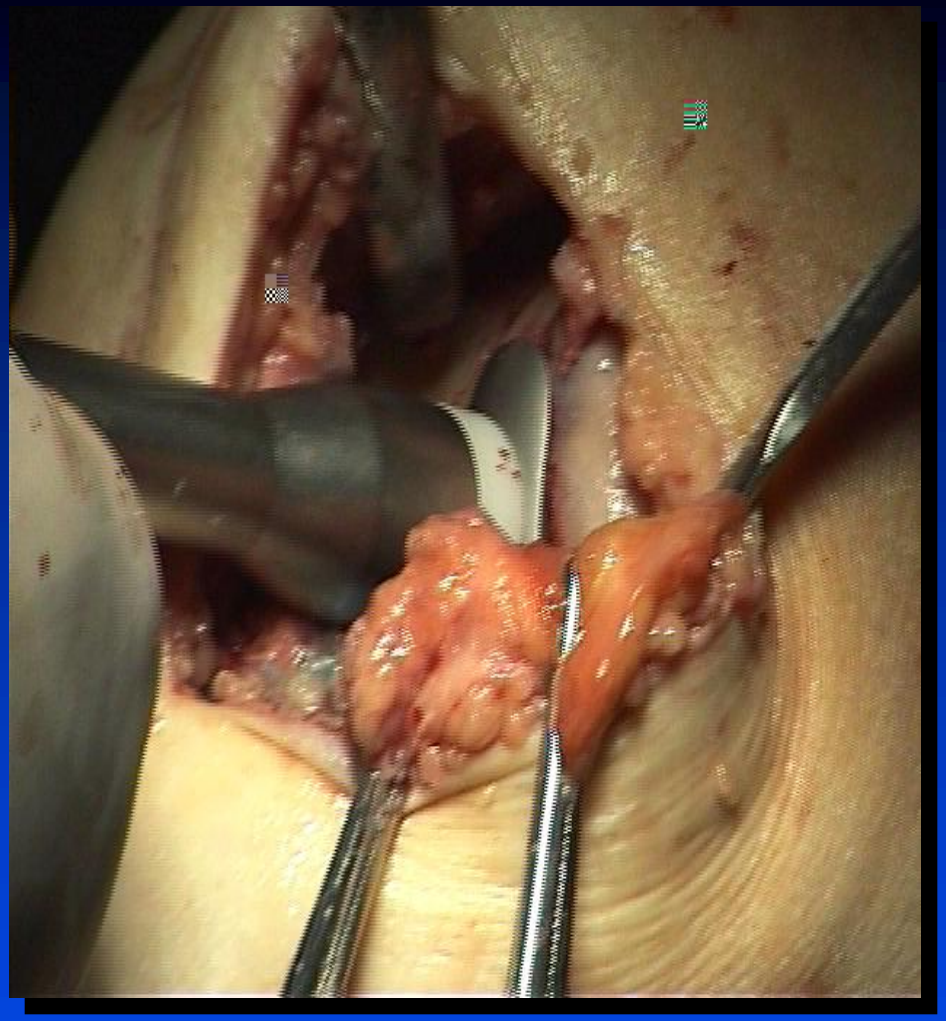


Insert the tibial trial in the cavity to evaluate fit & placement

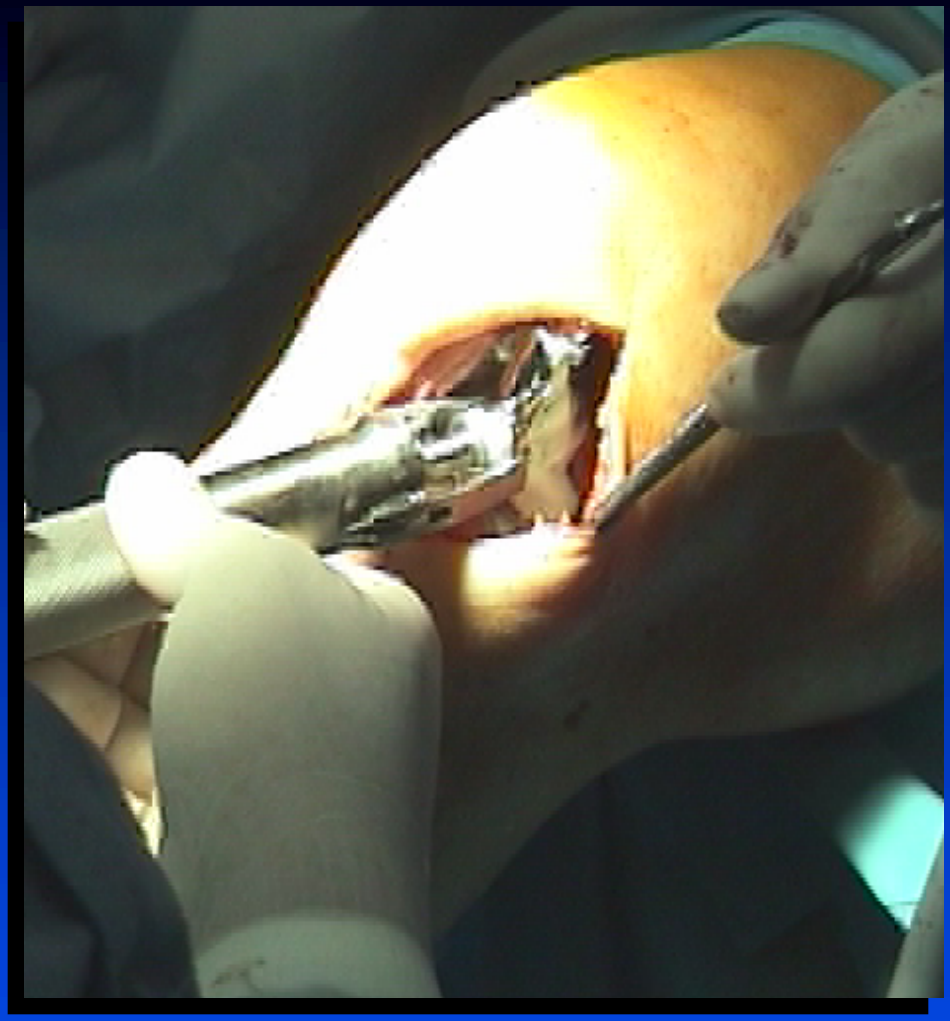


After selection of the femoral template round the distal condyle & deepen the prepared surface to 1 mm

Unicondylar Knee Arthroplasty

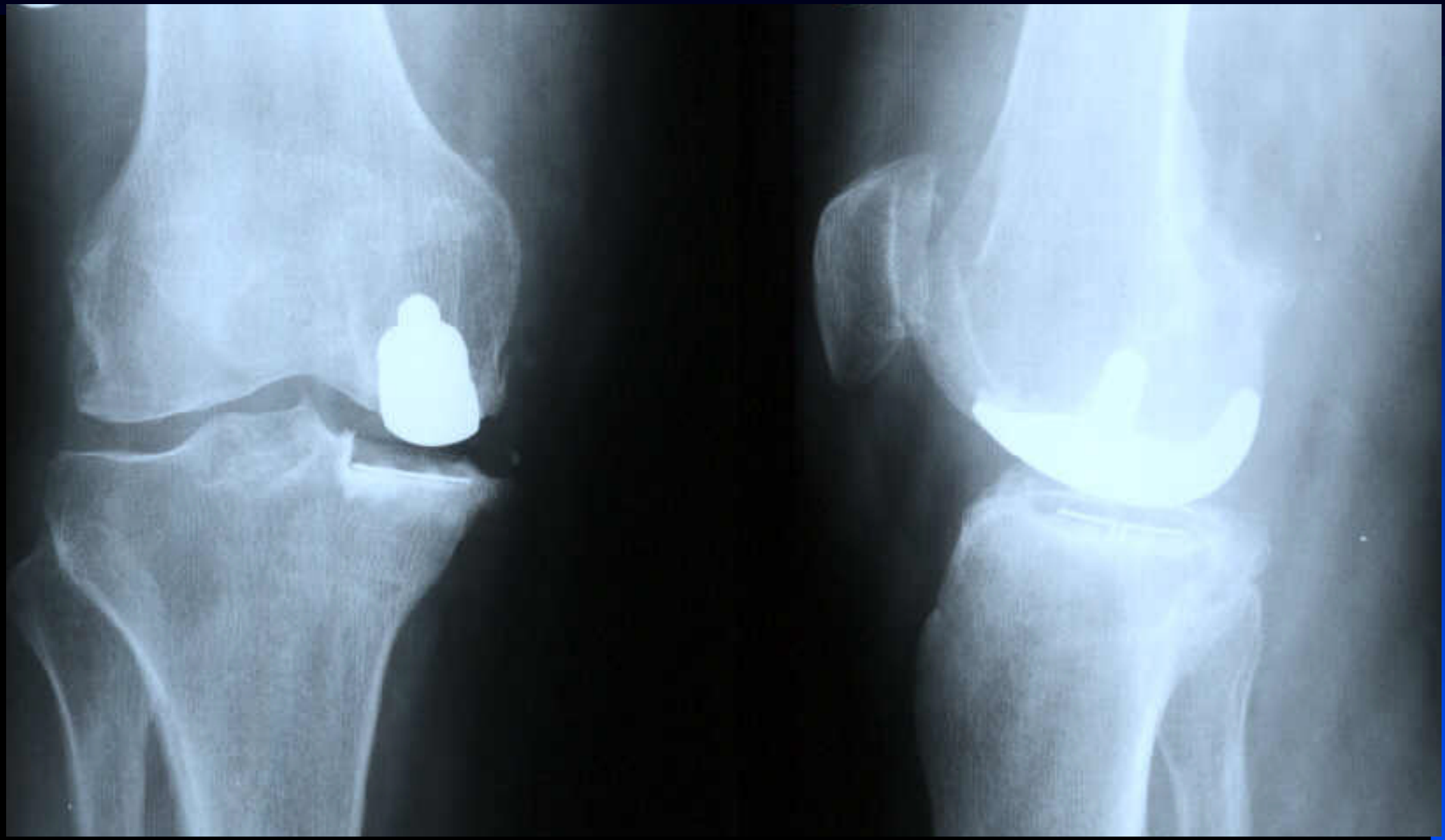


Place trials into position and judge tension and correct knee function

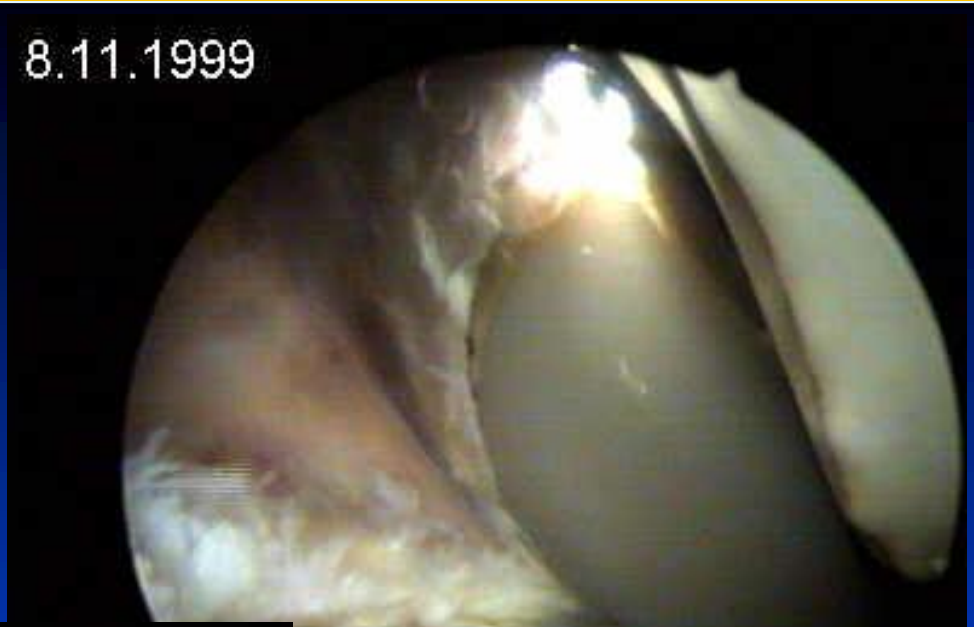


Implant the prosthesis with cement
1. tibia, 2. femur

Unicondylar Knee Arthroplasty



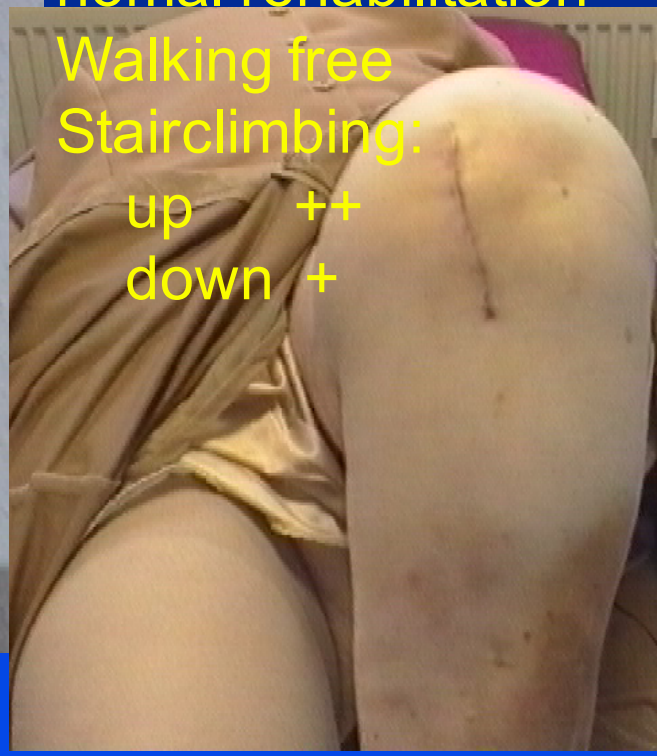
Unicondylar Knee Arthroplasty



male
76 years
active
Operat.: Aug. 1998
nomal rehabilitation
Now:
Pain med. the patella

Unicondylar Knee Arthroplasty

female
68 years
less active,
89 Kg,
168 cm
Operat.: 6 weeks bef.
nomal rehabilitation



Walking free
Stairclimbing:
up ++
down +

Oedema
Circulatory Disturbance

Advantages

Minimal Incision

No Blood Supply

Early Fullweight-Bearing

Short Time-Rehabilitation

- Low Costs

Minimal Bone Loss

- All Options

Disadvantages

Freehand

J Arthroplasty. 2001 Feb;16(2):174-9.

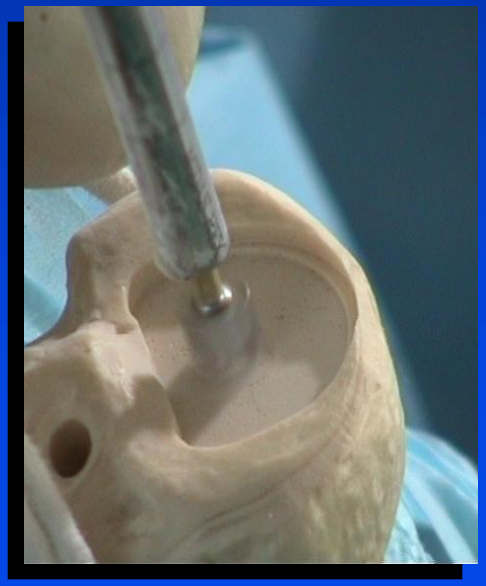
Does metal backing improve fixation of tibial component in unicondylar knee arthroplasty? A randomized radiostereometric analysis.

Hyldahl HC[1], Regnér L, Carlsson L, Kärrholm J, Weidenhielm L.
Author information
[1]Department of Orthopaedics, St Görans Hospital, S-11281 Stockholm, Sweden.

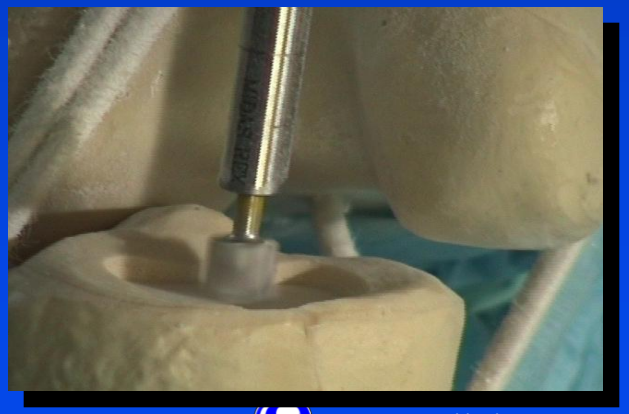
Abstract
In a prospective, randomized study, patients with medial gonarthrosis stage I to III according to Ahlbäck were allocated to a unicondylar knee arthroplasty (Miller-Galante, Zimmer, Inc., Warsaw, IN) with an all-polyethylene tibial component or metal-backed tibial component of the same design. The purpose of the study was to evaluate if metal backing enhanced tibial component fixation. A total of 45 knees (42 patients; 23 metal-backed components and 22 all-polyethylene components) were examined. We used radiostereometric analysis to measure micromotion of the tibial component over a period of 2 years after surgery. Hospital for Special Surgery score was used for clinical evaluation. We found no statistically significant differences in clinical results or migration of the tibial component over a 2-year follow-up period. These findings **do not support better fixation of metal-backed tibial components**. Because of these findings, we **advocate all-polyethylene tibial components in unicondylar knee arthroplasties because of optimal biomechanical strength at a given** height of tibial component, avoiding potential problems of modularity and minimizing the amount of interfaces, at a lower cost.

CASPAR in the ARTICO SPORTKLINIK 1998

Prepares the Tibiaplateau for REPICCI´s ALLPOLY-Inlay
Precision 0.2 mm



World Premiere



Repicci / Marmor

Goodfellow / Oxford

Clin Orthop Relat Res. 2010 Nov;468(11):3094-102. doi: 10.1007/s11999-010-1474-6. Epub 2010 Aug 13.

The Repicci II® unicondylar knee arthroplasty: 9-year survivorship and function.

O'Donnell T[1], Neil MJ.

Author information

[1]St Vincent's Clinic, Sydney, NSW, Australia. turlough09@gmail.com

Abstract

BACKGROUND:

Unicompartmental knee arthroplasty (UKA) is a recognized procedure for treatment of medial compartment osteoarthritis. UKA using minimally invasive surgery (MIS) has the theoretical advantage of less bone resection and quicker rehabilitation. Whether the function of patients with UKA compares with that of patients with conventional TKA is unclear.

QUESTIONS/PURPOSES:

We determined (1) the length of stay and complications associated with a short-stay MIS protocol; (2) whether MIS techniques allow for accurate positioning of the implant and alignment of the limb; (3) the change in functional scores; (4) the revision rate, reasons for revision, and survival of this implant.

PATIENTS AND METHODS:

We prospectively followed 100 patients who had 114 UKAs. All completed an International Knee Society (IKS) score preoperatively, at 1 year, and at last followup. We determined survivorship. Minimum followup was 5.2 years (mean, 7.4 years; range, 5.2-9 years).

RESULTS:

Mean length of stay was 1.2 days, with 41% discharged the same day. The perioperative complication rate was 6%. The mean IKS score improved from 77 to 93 and was 86 at last followup. The mean hip-knee-ankle axis changed from 6° varus to 1.7° varus. Twenty-two patients underwent a revision procedure at a mean 6.2 years after the index procedure. Survivorship of the prosthesis was 78% at 9 years.

CONCLUSIONS:

The short-stay protocol was not associated with a high perioperative complication rate. This technique is associated with improvement in function and restoration of limb alignment, allowing accurate positioning of the implant. Compared with other reports of survival of UKA, this implant had a lower survivorship and increased revision rate.


PubMed
oxford uka
Create RSS
Create alert
Advanced
Summary
20 per page
Sort by Most Recent
Search results
Items: 1 to 20 of 116

Indications UKR <> Contra

• Varus <	> 12 - 14 °
• Valgus <	> 12 - 14 °
• LCL &	
• MCL sufficient	insufficient
• ACL sufficient	insufficient
	• Subluxation
	• Posterior fixation
	• complex instability

Knee Surg Sports Traumatol Arthrosc (2011) 19:277–284
DOI 10.1007/s00167-010-1213-2

KNEE

Oxford Phase 3 unicompartmental knee arthroplasty: medium-term results of a minimally invasive surgical procedure

Lukas A. Lisowski · Michel P. J. van den Bekerom · Peter Pilot · C. Niek van Dijk · Andrzej E. Lisowski

Table 1 Demographic baseline characteristics of 216 patients treated by means of UKA for medial compartment osteoarthritis

Number of prostheses	$N = 244$ ($N = 216$ patients)
Follow-up >5 years	$N = 96$
Bilateral	$N = 28$
Side	122 right; 122 left
Age (years), median (range)	72 (43–91)
Body mass index (kg/m^2), mean ± SD (range)	28 ± 5 (18.5–52.2)
Operation time (min), mean ± SD (range)	66 ± 14 (45–120)

Clin Rheumatol. 2010 Apr;29(4):339-46. doi: 10.1007/s10067-009-1354-1.

Unicompartmental knee arthroplasty: a review of literature.

Saccomanni B[1].
Author information
[1]Orthopaedic and Traumatologic Surgery, University of Chieti, Chieti, Scalo, Italy. bernasacco@yahoo.it
Retraction in
Retraction note. Erratum: Unicompartmental knee arthroplasty: a review of literature. [Clin Rheumatol. 2011]
Abstract
There has been a resurgence of interest in unicompartmental knee arthroplasty (UKA) for treatment of medial unicompartmental knee osteoarthritis (OA). Improved prosthetic design, minimally invasive surgical techniques, and strict patient selection criteria have resulted in improved survivorship and functional outcomes. A review of orthopedic literature was conducted regarding the advantages of UKA versus total knee arthroplasty (TKA), UKA indications, survivorship, conversion of UKA to TKA, rehabilitation, and outcomes. The UKA appears to be a viable option for patients with knee medial compartment OA, including younger and active patients.

Survivorship rates of 94% to 97% at 10 years have been reported.

Arch Orthop Trauma Surg. 2010 Dec;130(12):1539-48. doi: 10.1007/s00402-010-1137-9. Epub 2010 Jun 18.

Lateral unicompartmental knee arthroplasty: a review.

Heyse TJ[1], Tibesku CO.

Author information

[1]Department of Orthopedics and Rheumatology, University Hospital Marburg, Baldingerstrasse, 35043, Marburg, Germany. heyse@med.uni-marburg.de

Abstract

Lateral unicondylar knee arthroplasty (UKA) has been utilized as a treatment for isolated lateral tibiofemoral osteoarthritis (OA) since the first description of UKA in the 1970s. To date, there remains some controversy on UKA procedures. As indications for lateral UKA are usually rare, surgeon experience seems to be the key factor for a successful intervention. Better understanding of biomechanics of the knee joint, recent developments in prosthesis design, surgical techniques and indications may add to improved outcomes of lateral UKA. Alternatives that are applied to treat lateral tibiofemoral OA include arthroscopic interventions, osteotomies and total knee arthroplasty (TKA). In comparison with TKA, potential advantages of UKA include a minimally or less invasive approach, less bone resection, preservation of the cruciate ligaments, preservation of the medial tibiofemoral and the patellofemoral compartments, shorter rehabilitation, and physiological knee kinematics. This review aims to summarize the current concepts of implant designs as well as indications and contraindications for lateral UKA. The literature will be presented and discussed as well as results and realistic expectations on both the surgeon's and the patient's side. Alternative treatments and future concepts for lateral UKA will be presented.

Biomed Res Int. 2015;2015:575849. doi: 10.1155/2015/575849. Epub 2015 Mar 19.

PMMA third-body wear after unicondylar knee arthroplasty decuples the UHMWPE wear particle generation in vitro.

Paulus AC[1], Franke M[1], Kraxenberger M[1], Schröder C[1], Jansson V[1], Utzschneider S[1].

Author information

[1]Department of Orthopedic Surgery, University Hospital of Munich (LMU), Campus Großhadern, Marchioninistraße 15, 81377 Munich, Germany.

Abstract

INTRODUCTION:

Overlooked polymethylmethacrylate after unicondylar knee arthroplasty can be a potential problem, since this might influence the generated wear particle size and morphology. The aim of this study was the analysis of polyethylene wear in a knee wear simulator for changes in size, morphology, and particle number after the addition of third-bodies.

MATERIAL AND METHODS:

Fixed bearing unicondylar knee prostheses (UKA) were tested in a knee simulator for 5.0 million cycles. Following bone particles were added for 1.5 million cycles, followed by 1.5 million cycles with PMMA particles. A particle analysis by scanning electron microscopy of the lubricant after the cycles was performed. Size and morphology of the generated wear were characterized. Further, the number of particles per 1 million cycles was calculated for each group.

RESULTS:

The particles of all groups were similar in size and shape. The number of particles in the PMMA group showed 10-fold higher values than in the bone and control group (PMMA: 10.251 × 10(12); bone: 1.145 × 10(12); control: 1.804 × 10(12)).

CONCLUSION:

The addition of bone or PMMA particles in terms of a third-body wear results in no change of particle size and morphology. PMMA third-bodies generated tenfold elevated particle numbers. This could favor an early aseptic loosening.

ALL-Poly <> Metal-back Tibia component

??

J Bone Joint Surg Am. 2009 Jul;91(7):1587-94. doi: 10.2106/JBJS.G.01427.

All-polyethylene compared with metal-backed tibial components in total knee arthroplasty at ten years. A prospective, randomized controlled trial.

Bettinson KA[1], Pinder IM, Moran CG, Weir DJ, Lingard EA.

Author information

[1]Department of Orthopaedics, Freeman Hospital, Newcastle upon Tyne NE7 7DN, United Kingdom. karen.bettinson@nuth.nhs.uk

Abstract

BACKGROUND:

Several studies have described equivalent performance on radiostereometric analysis at two years for metal-backed compared with all-polyethylene stemmed tibial implants. The purpose of this study was to determine the ten-year survivorship results of these two designs from a large randomized controlled trial.

METHODS:

Patients who were fifty years old or more, with no history of infection, and were undergoing primary total knee arthroplasty were randomized at the time of surgery to receive either an all-polyethylene or a metal-backed tibial component. Patients were assessed preoperatively and at one, three, five, eight, and ten years postoperatively. All assessments included a clinical history, a physical examination, and a radiographic evaluation. A total of 510 consecutive patients (566 knees) were recruited from August 1993 to January 1997. The mean age of the patients at the time of the index arthroplasty was 69.3 years, and 299 (59%) were women. The primary diagnosis was osteoarthritis for 458 knees (80.9%) and rheumatoid arthritis for 108 knees (19.1%).

RESULTS:

Two hundred and ninety-three patients returned for the ten-year follow-up evaluation. A total of twenty-eight knees had been revised. Ten-year survivorship, with revision for any reason (or the time at which patients were documented as requiring revision but were unfit for surgery) as the end point, was 94.5% (95% confidence interval, 90.4% to 96.8%) for the all-polyethylene design and 96% (95% confidence interval, 92.6% to 97.8%) for the metal-backed design. Ten-year survivorship, with aseptic failure as the end point, was 97% (95% confidence interval, 93.3% to 98.7%) for the all-polyethylene design and 96.8% (95% confidence interval, 93.6% to 98.4%) for the metal-backed design. On the basis of the numbers available at ten years, there was no significant difference in survivorship between the two designs ($p > 0.05$).

CONCLUSIONS:

The long-term results demonstrate excellent survivorship, with revision as the end point, for both the metal-backed and the all-polyethylene tibial component designs with **no differences** noted between the two.

Clin Orthop Relat Res. 2012 Dec;470(12):3549-59. doi: 10.1007/s11999-012-2582-2. Epub 2012 Sep 13.

All-polyethylene tibial components are equal to metal-backed components: systematic review and meta-regression.

Nouta KA[1], Verra WC, Pijls BG, Schoones JW, Nelissen RG.

Author information

[1]Department of Orthopaedics, Leiden University Medical Center, Postal Code J11R, PO Box 9600, 2300 RC Leiden, The Netherlands. K.A.Nouta@lumc.nl

Abstract

BACKGROUND:

Less than 1% of all primary TKAs are performed with an all-polyethylene tibial component, although recent studies indicate all-polyethylene tibial components are equal to or better than metal-backed ones.

QUESTIONS/PURPOSES:

We asked whether the metal-backed tibial component was clinically superior to the all-polyethylene tibial component in primary TKAs regarding revision rates and clinical functioning, and which modifying variables affected the revision rate.

METHODS:

We systematically reviewed the literature for clinical studies comparing all-polyethylene and metal-backed tibial components used in primary TKAs in terms of revision rates, clinical scores, and radiologic parameters including radiostereometric analysis (RSA). Meta-regression techniques were used to explore factors modifying the observed effect. Our search yielded 1557 unique references of which 26 articles were included, comprising more than 12,500 TKAs with 231 revisions for any reason.

RESULTS:

Meta-analysis showed **no differences** between the all-polyethylene and metal-backed components except for higher migration of the metal-backed components. Meta-regression showed strong evidence that the all-polyethylene design has improved with time compared with the metal-backed design.

CONCLUSIONS:

The all-polyethylene components were equivalent to metal-backed components regarding revision rates and clinical scores. The all-polyethylene components had better fixation (RSA) than the metal-backed components. The belief that metal-backed components are better than all-polyethylene ones seems to be based on studies from earlier TKAs. This might no longer be true for modern TKAs.

LEVEL OF EVIDENCE:

Level II, therapeutic study. See Guidelines for Authors for a complete description of levels of evidence.

Mobile- vs. fixed-bearing

Acta Orthop. 2015 Apr;86(2):208-14. doi: 10.3109/17453674.2014.968476. Epub 2014 Oct 3.

Mobile- vs. fixed-bearing total knee replacement.

Tjørnild M[1], Søballe K, Hansen PM, Holm C, Stilling M.
Author information
[1]Department of Orthopedics, Horsens Regional Hospital, Horsens.

Abstract

BACKGROUND AND PURPOSE:
It is unclear whether mobile-bearing (MB) total knee arthroplasties reduce the risk of tibial component loosening compared to fixed-bearing (FB) designs. This randomized study investigated implant migration, periprosthetic bone mineral density (BMD), and patient-reported outcomes (Oxford knee score)-all at 2 years-for the P.F.C. Sigma Cruciate Retaining total knee arthroplasty.

PATIENTS AND METHODS:
50 osteoarthritis patients were allocated to either FB or MB tibial articulation.

RESULTS AND INTERPRETATION:
At 2 years, the mean total translation (implant migration) was higher for the FB implant (0.30 mm, SD 0.22) than for the MB implant (0.17 mm, SD 0.09) (p = 0.04). BMD decreased between baseline and 1-year follow-up. At 2-year follow-up, BMD was close to the baseline level. The knee scores **of both groups improved equally** well. The FB tibial implant migrated more than the MB, but this was not clinically significant. The mobile polyethylene presumably partly absorbs the force transmitted to the metal tibial tray, thereby reducing micromotion.

Bone Joint J. 2015 Nov;97-B(11):1493-500. doi: 10.1302/0301-620X.97B11.35634.

The clinical outcome of minimally invasive Phase 3 Oxford unicompartmental knee arthroplasty: a 15-year follow-up of 1000 UKAs.

Pandit H[1], Hamilton TW[1], Jenkins C[2], Mellon SJ[1], Dodd CA[2], Murray DW[3].

Author information

[1]NDORMS, University of Oxford, Windmill Road, Oxford OX3 7LD, UK.
[2]Nuffield Orthopaedic Centre, Oxford University Hospitals Trust, Windmill Road, Oxford OX3 7LD, UK.
[3]Nuffield Orthopaedic Centre and NDORMS, University of Oxford, Windmill Road, Oxford OX3 7LD, UK.

Abstract

There have been concerns about the long-term survival of unicompartmental knee arthroplasty (UKA). This prospective study reports the 15-year survival and ten-year functional outcome of a consecutive series of 1000 minimally invasive Phase 3 Oxford medial UKAs (818 patients, 393 men, 48%, 425 women, 52%, mean age 66 years; 32 to 88). These were implanted by two surgeons involved with the design of the prosthesis to treat anteromedial osteoarthritis and spontaneous osteonecrosis of the knee, which are recommended indications. Patients were prospectively identified and followed up independently for a mean of 10.3 years (5.3 to 16.6). At ten years, the mean Oxford Knee Score was 40 (standard deviation (sd) 9; 2 to 48): 79% of knees (349) had an excellent or good outcome. There were 52 implant-related re-operations at a mean of 5.5 years (0.2 to 14.7). The most common reasons for re-operation were arthritis in the lateral compartment (2.5%, 25 knees), bearing dislocation (0.7%, seven knees) and unexplained pain (0.7%, seven knees). When all implant-related re-operations were considered as failures, the

- ten-year rate of survival was 94% (95% confidence interval (CI) 92 to 96) and the
- 15-year survival rate 91% (CI 83 to 98). When failure of the implant was the endpoint the 15-year survival was 99% (CI 96 to 100). This is the only large series of minimally invasive UKAs with 15-year survival data. The results support the continued use of minimally invasive UKA for the recommended indications. Cite this article: Bone Joint J 2015;97-B:1493-1500.

World J Orthop. 2015 Nov 18;6(10):804-11. doi: 10.5312/wjo.v6.i10.804. eCollection 2015.

Minimally invasive knee arthroplasty: An overview.

Tria AJ[1], Scuderi GR[1].

Author information

[1]Alfred J Tria, Department of Orthopaedic Surgery, Rutgers-Robert Wood Johnson Medical School, the Orthopaedic Center of New Jersey, Somerset, NJ 08873, United States.

Abstract

Minimally invasive surgery (MIS) for arthroplasty of the knee began with surgery for unicondylar knee arthroplasty (UKA). Partial knee replacements were designed in the 1970s and were amenable to a more limited exposure. In the 1990s Repicci popularized the MIS for UKA. Surgeons began to apply his concepts to total knee arthroplasty. Four MIS surgical techniques were developed: quadriceps sparing, mini-mid vastus, mini-subvastus, and mini-medial parapatellar. The quadriceps sparing technique is the most limited one and is also the most difficult. However, it is the least invasive and allows rapid recovery. The mini-midvastus is the most common technique because it affords slightly better exposure and can be extended. The mini-subvastus technique entirely avoids incising the quadriceps extensor mechanism but is time consuming and difficult in the obese and in the muscular male patient. The mini-parapatellar technique is most familiar to surgeons and represents a good starting point for surgeons who are learning the techniques. The surgeries are easier with smaller instruments but can be performed with standard ones. The techniques are accurate and do lead to a more rapid recovery, with less pain, less blood loss, and greater motion if they are appropriately performed.

KEYWORDS:

Arthroplasty; Knee; Minimally invasive surgery; Replacement; Surgery

Discussion

Cochrane Database Syst Rev. 2014 Dec 13;12:CD004019. doi: 10.1002/14651858.CD004019.pub4.

Osteotomy for treating knee osteoarthritis.

Brouwer RW[1], Huizinga MR, Duivenvoorden T, van Raaij TM, Verhagen AP, Bierma-Zeinstra SM, Verhaar JA.

Author information

[1]Department of Orthopaedic Surgery,Martini Hospital, PO Box 30033, Groningen, 9700 RM, Netherlands. r.w.brouwer@mzh.nl. rwbrouwer69@gmail.com.

MAIN RESULTS:

Eight new studies were included in this update, for a total of 21 included studies involving 1065 people.In four studies, the randomised sequence was adequately generated and clearly described. In eight studies, allocation concealment was adequately generated and described. In four studies, the blinding procedures were sufficient. In six studies, incomplete outcome data were not adequately addressed. Furthermore, in 11 studies, the selective outcome reporting item was unclear because no study protocol was provided.Follow-up of studies comparing different osteotomy techniques was too short to measure treatment failure, which implicates revision to a knee arthroplasty.Four studies evaluated a closing wedge high tibial osteotomy (CW-HTO) with another high tibial osteotomy (aHTO). Based on these studies, the CW-HTO group had 1.8% (95% confidence interval (CI) -7.7% to 4.2%; low-quality evidence) more pain compared with the aHTO group; this finding was not statistically significant. Pooled function in the CW-HTO group was 0.5% (95% CI -3.8% to 2.8%; low-quality evidence) higher compared with the aHTO group; this finding was not statistically significant. No data on health-related quality of life and mortality were presented.Serious adverse events were reported in only four studies and were not significantly different (low-quality evidence) between groups. The reoperation rate were scored as early hardware removal because of pain and pin track infection due to the external fixator. Risk of reoperation was 2.6 (95% CI 1.5 to 4.5; low-quality evidence) times higher in the aHTO group compared with the CW-HTO group, and this finding was statistically significant.The quality of evidence for most outcomes comparing different osteotomy techniques was downgraded to low because of the numbers of available studies, the numbers of participants and limitations in design.Two studies compared high tibial osteotomy versus unicompartmental knee replacement. Treatment failure and pain and function scores were not different between groups after a mean follow-up of 7.5 years. The osteotomy group reported more adverse events when compared with the unicompartmental knee replacement group, but the difference was not statistically significant. No data on health-related quality of life and mortality were presented.No study compared an osteotomy versus conservative treatment.Ten included studies compared differences in perioperative or postoperative conditions after high tibial osteotomy. In most of these studies, no statistically significant differences in outcomes were noted between groups.

AUTHORS' CONCLUSIONS:

The conclusion of this update did not change: Valgus high tibial osteotomy reduces pain and improves knee function in patients with medial compartmental osteoarthritis of the knee. However, this conclusion is based on within-group comparisons, not on non-operative controls. No evidence suggests differences between different osteotomy techniques.

- No evidence shows whether an osteotomy is more effective than alternative surgical treatment such as
- unicompartmental knee replacement or
- non-operative treatment. So far, the results of this updated review do not justify a conclusion on benefit of specific high tibial osteotomy technique for knee osteoarthritis.

Update of

Osteotomy for treating knee osteoarthritis. [Cochrane Database Syst Rev. 2007]

Indication & Limits

>> Individual

- biomechanically
- biologically
- surgically

- Surgeons Experience

Thank You