ISAKOS CONGRESS 2023

Boston
Massachusetts
June 18 – June 21

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Boston Massachusetts June 18–June 21

IRCCS Ospedale Galeazzi, Milan, Italy

Title: Combined Fixed-Bearing Unicompartmental Knee Arthroplasty and Anterior Cruciate Ligament Reconstruction

Author/s: Claudio Legnani, Enrico Borgo, Vittorio Macchi Alberto Ventura

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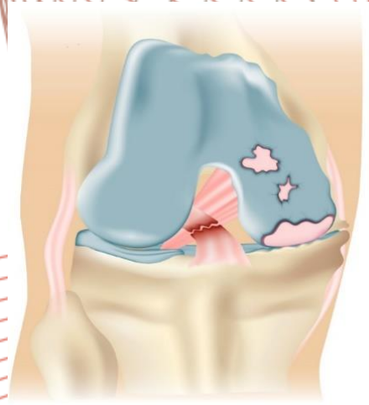
Disclosures:

Dr. Claudio Legnani has no financial relationships or conflict of interest related to the content of this presentation

INTRODUCTION

A treatment option combining medial UKR and ACL reconstruction has been developed in order to reduce invasiveness and blood loss, improve recovery time, and restore knee kinematics in patients affected by osteoarthritis of the medial femorotibial compartment in conjunction with anterior knee laxity



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Knee Surgery, Sports Traumatology, Arthroscopy
https://doi.org/10.1007/s00167-022-07102-3

KNEE

Combined treatment with medial unicompartmental knee arthroplasty and anterior cruciate ligament reconstruction is effective on long-term follow-up

Ayham Jaber[1] · Chang min Kim[2] · Alexander Barié[3] · Marcus Streit[4] · Holger Schmitt[5] · Michael Clarius[6] · Christian Merle[1] · Yannic Bangert[1]

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Knee Surg Sports Traumatol Arthrosc (2012) 20:81–87
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KNEE

Combined unicompartmental knee arthroplasty and anterior cruciate ligament reconstruction

Marco Tinius · Pierre Hepp · Roland Becker

Contents lists available at ScienceDirect

The Knee

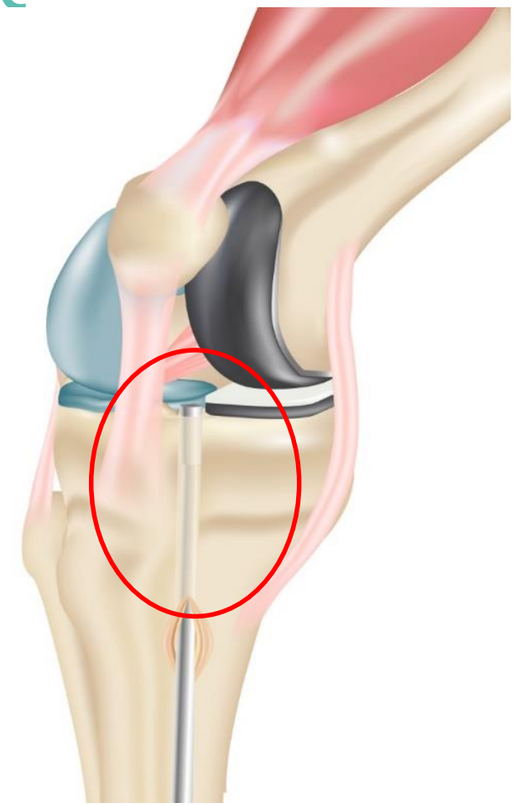
journal homepage:

Excellent outcomes with combined single stage Physica ZUK medial unicompartment knee replacement and anterior cruciate ligament reconstruction results in young, active patients with instability and osteoarthritis with a mean follow up of 5 years

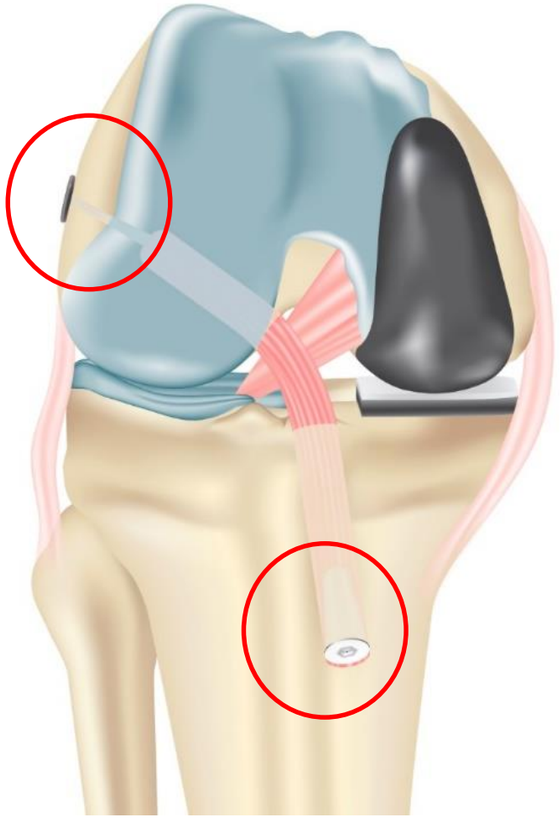
Thomas Kurien[a,b,*], Bruno Stragier[a,c], Shanaka Senevirathna[a], Guido Geutjens[d]

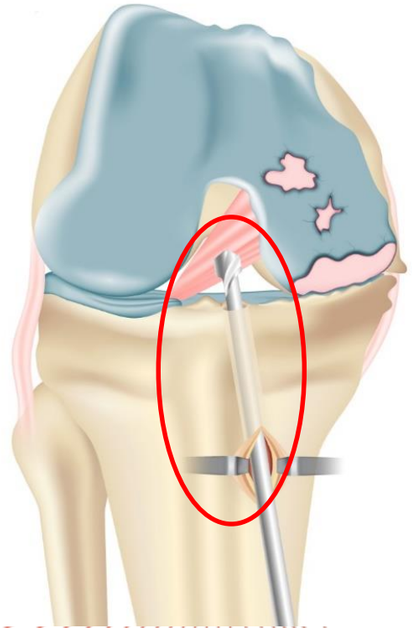
SURGICAL TECHNIQUE

To avoid the role of a stress riser, the tibial tunnel has to be drilled more vertically to prevent the risk of proximal tibia fracture and slightly more laterally to avoid weakening of the tibial medial plateau or impingement on the tibial component with the distal insertion of the graft.



It is important to ensure that the graft is fixated at the end of the surgical procedure, because of the knee valgus effect on the length of the ACL





Before implantation of the components, tibial tunnel should be filled with an impactor to avoid accidental penetration of the cement into tunnel.

METHODS

Please indicate below the **HIGHEST** level of activity that you are able to participate in **CURRENTLY**.

- ☐ Level 10 Competitive sports-soccer, football, rugby (national elite)
- ☐ Level 9 Competitive sports-soccer, football, rugby (lower divisions), ice hockey, wrestling, gymnastics, basketball
- ☐ Level 8 Competitive sports-racquetball, squash or badminton, track and field athletics (jumping, etc.), downhill skiing
- ☐ Level 7 Competitive sports-tennis, running, motorcars speedway, handball
  Recreational sports-soccer, football, rugby, ice-hockey, basketball, squash, racquetball, running
- ☐ Level 6 Recreational sports-tennis and badminton, handball, racquetball, downhill skiing, jogging at least 5 x per week
- ☐ Level 5 Work-heavy labor (construction, etc.)
  Competitive sports-cycling, cross-country skiing
  Recreational sports-jogging on uneven ground at least twice weekly
- ☐ Level 4 Work-moderately heavy labor (e.g. truck driving, etc.)
  Recreational sports-cycling, cross-country skiing, jogging on even ground at least twice weekly
- ☐ Level 3 Work-light labor (nursing, etc.)
  Competitive and recreational sports-swimming, v
  possible
- ☐ Level 2 Walking on uneven ground possible, but impossi
- ☐ Level 1 Work-sedentary (secretarial, etc.)
- ☐ Level 0 Sick leave or disability pension because of knee

Twelve patients with ACL deficiency and concomitant medial compartment symptomatic osteoarthritis were followed up for an average time of 7.8 years (range 6-10 years).

Assessment included KOOS score, Oxford Knee score, AKSS score, WOMAC index of osteoarthritis, Tegner activity level, objective examination including instrumented laxity test with KT-1000 arthrometer and standard X-rays.

RESULTS

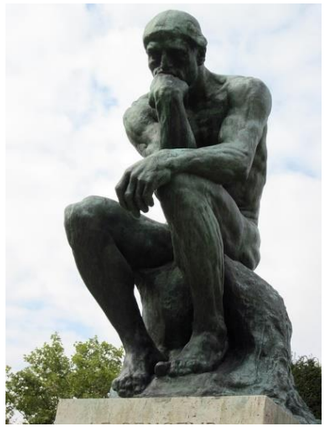
The mean overall point scales increased from preoperative status, showing a statistically significant difference (P<.001).

No clinical evidence of instability nor arthrofibrosis in any of the knees was reported.

	Pre-operative	Post-operative	p value
KOOS score (mean, SD)	62.4 (8.1)	80.2 (11.7)	p<0.001
Oxford knee score (mean, SD	28.8 (10.1)	42.4 (8.9)	p<0.001
WOMAC index (mean, SD)	71.9 (11.5)	84.9 (9.3)	p<0.001
AKSS objective score (mean, SD)	45 (12.9)	75 (13.5)	p<0.001
AKSS functional score (mean, SD)	80 (14.2)	88 (16.2)	p<0.001
Mean side-to-side anterior laxity (mean, SD)	5.7 (SD: 1.4)	2.8 (0.9)	p<0.001

RESULTS

At the time of radiographic follow-up, no evidence of component subsidence or pathologic radiolucent lines was observed around the components



Due to pain persistence and osteoarthritis progression in the lateral compartment, 3 years after surgery one female patient underwent revision surgery with total knee arthroplasty with relieving of the symptoms.

DISCUSSION

Favorable results for UKR combined with ACL reconstruction

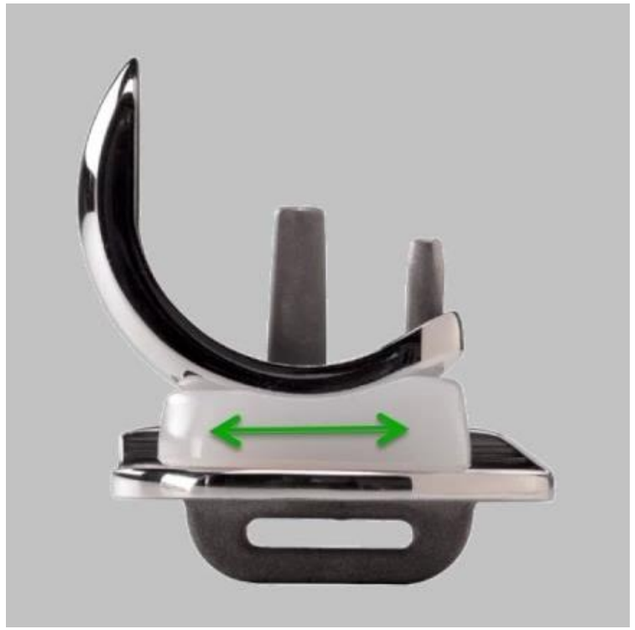
- reduced invasiveness and blood loss
- better knee kinematics
- fewer and less severe complications

- technically demanding procedures
- graft impingement
- tibial plate undersizing

DISCUSSION

TECHNICAL FACTORS!

Fixed Vs. Mobile Bearing



Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-017-4536-4

KNEE

Satisfactory outcomes following combined unicompartmental knee replacement and anterior cruciate ligament reconstruction

Andrea Volpin[1] · S. G. Kini[2] · D. E. Meuffels[3]

Technical factors such as proper tensioning of either collateral ligaments or ACL are key factors to successful outcomes following mobile-bearing UKA, and its implantation relies on the integrity of both ACL and medial collateral ligament.

DISCUSSION

TECHNICAL FACTORS!

No graft failures were reported. This may be related to the fact that most of middle-aged patients do not return to sports involving pivoting, cutting, and jumping, thus preventing the risk of re-injury. In addition, the osteoarthritic process as well as the impact of the surgical operation could have increased joint stiffness.

THE PHYSICIAN AND SPORTSMEDICINE
https://doi.org/10.1080/00913847.2020.1795558

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REVIEW

Check for updates

Anterior cruciate ligament reconstruction combined to partial knee replacement in active patients with ACL deficiency and knee osteoarthritis

Claudio Legnani [a], Stefano Muzzi [b], Giuseppe M Peretti [c,d], Enrico Borgo [a] and Alberto Ventura [a]

Only in two papers [9,12], a total of 29 patients underwent a two-staged procedure while in all other patients ACL reconstruction and UKR were performed in the same sitting. Authors who performed two-staged procedures reserved this approach to patients for whom the main complaint was knee instability and performed ACL reconstruction first followed by UKR for persistent pain; conversely, a one-staged procedure was chosen for patients complaining about medial knee pain.

Autologous Vs. Allograft Tendon

One Vs. Two Stage

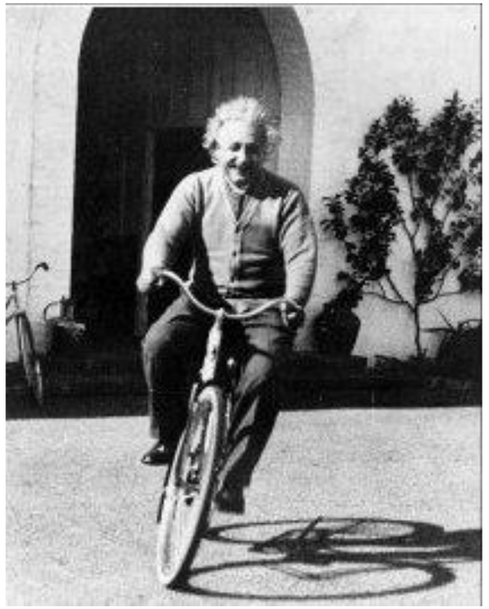
CONCLUSIONS & TAKE-HOME MESSAGES

UKR combined with ACL reconstruction is a valid therapeutic option for young and active patients with a primary ACL injury who develop secondary OA and confirms subjective and objective clinical improvement up to 8 years after surgery

Suitable for primary ACL deficiency followed by secondary osteoarthritis

Increased risk of early prosthetic failure due to younger and more active patients

Longer post-operative period compared to TKA



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References:

Mancuso F, Hamilton TW, Kumar V, Murray DW, Pandit H. Clinical outcome after UKA and HTO in ACL deficiency: a systematic review. *Knee Surg Sports Traumatol Arthrosc* 2016;**24**:112-122, doi:10.1007/s00167-014-3346-1.

Legnani C, Muzzi S, Peretti GM, Borgo E, Ventura A. Anterior cruciate ligament reconstruction combined to partial knee replacement in active patients with ACL deficiency and knee osteoarthritis. *Phys Sportsmed* 2021;**49**:12-17, doi:10.1080/00913847.2020.1795558.

Vannini F, Spalding T, Andriolo L, Berruto M, Denti M, Espregueira-Mendes J, Menetrey J, Peretti GM, Seil R, Filardo G. Sport and early osteoarthritis: the role of sport in aetiology, progression and treatment of knee osteoarthritis. *Knee Surg Sports Traumatol Arthrosc* 2016;**24**:1786-1796, doi:10.1007/s00167-016-4090-5.

Tian S, Wang B, Wang Y, Ha C, Liu L, Sun K. Combined unicompartmental knee arthroplasty and anterior cruciate ligament reconstruction in knees with osteoarthritis and deficient anterior cruciate ligament. *BMC Musculoskelet Disord* 2016;**17**:327, doi:10.1186/s12891-016-1186-5.

Tinius M, Hepp P, Becker R. Combined unicompartmental knee arthroplasty and anterior cruciate ligament reconstruction. *Knee Surg Sports Traumatol Arthrosc* 2012;**20**:81-87, doi:10.1007/s00167-011-1528-7.

Scott CEH, Holland G, Krahelski O, Murray IR, Keating JF, Keenan OJF. Patterns of cartilage loss and anterior cruciate ligament status in end-stage osteoarthritis of the knee. *Bone Joint J* 2020;***102-B***:716-726, doi:10.1302/0301-620X.102B6.BJJ-2019-1434.R1.

Weston-Simons JS, Pandit H, Jenkins C, Jackson WF, Price AJ, Gill HS, Dodd CA, Murray DW. Outcome of combined unicompartmental knee replacement and combined or sequential anterior cruciate ligament reconstruction: a study of 52 cases with mean follow-up of five years. *J Bone Joint Surg Br* 2012; **94**:1216-1220, doi:10.1302/0301-620X.94B9.28881.

Iriberri I, Suau S, Payan L, Aragon JF. Long-term deterioration after one-stage unicompartmental knee arthroplasty and anterior cruciate ligament reconstruction. *Musculoskelet Surg* 201;**103**:251-256, doi:10.1007/s12306-018-0582-4.

Ventura A, Legnani C, Terzaghi C, Macchi V, Borgo E. Unicompartmental Knee Replacement Combined to Anterior Cruciate Ligament Reconstruction: Midterm Results. *J Knee Surg* 2020;**33**: 1152-1156, doi:10.1055/s-0039-1692647.

Ventura A, Legnani C, Terzaghi C, Iori S, Borgo, E. Medial unicondylar knee arthroplasty combined to anterior cruciate ligament reconstruction. *Knee Surg Sports Traumatol Arthrosc* 2017;**25**:675-680, doi:10.1007/s00167-015-3808-0.