

KEY PROCEDURES

MEDIAL UNICCOMPARTMENTAL KNEE ARTHROPLASTY WITH A FIXED BEARING IMPLANT

Philip Winnock de Grave, MD, Thomas Luyckx, MD, PhD, Alexander Ryckaert, MD, Jan Noyez, MD, Paul Gunst, MD, Luc Van den Daelen, MD

Published outcomes of this procedure can be found at:
J Arthroplasty. 2018 Sep;33(9): 2792-9.

COPYRIGHT © 2019 THE AUTHORS. PUBLISHED BY THE JOURNAL OF BONE AND JOINT SURGERY, INCORPORATED.



Click the arrow above or go to [surgicaltechniques.jbjs.org](https://www.surgicaltechniques.jbjs.org) to view the video article described in this summary.

Abstract

Unicompartmental knee arthroplasty (UKA) is an alternative to total knee arthroplasty in isolated medial arthritis. UKA restores native tibial and femoral joint surfaces and corrects pre-disease limb alignment, by which natural knee biomechanics are restored, ensuring effective functional recovery. Proper patient selection and accurate surgical technique contribute to good functional outcome and long-term survival. The key steps of the procedure (as well as multiple tips and tricks) are demonstrated in the video article: (1) preoperative assessment and planning; (2) patient positioning and setup; (3) exposure; (4) instrument options and surgical technique; (5) distal femoral resection; (6) proximal tibial resection; (7) assessment of alignment and gaps; (8) finishing the femur—sizing, position, and posterior resection; (9) finishing the tibia—sizing and position; (10) trialing the implant; (11) implanting final components—cementing technique; (12) closure; and (13) rehabilitation. Following these surgical steps and principles will lead to excellent functional long-term results with a low revision rate and a minimum of complications.

Philip Winnock de Grave, MD¹

Thomas Luyckx, MD, PhD¹

Alexander Ryckaert, MD¹

Jan Noyez, MD¹

Paul Gunst, MD¹

Luc Van den Daelen, MD¹

¹Orthopaedic Department, AZ Delta Hospital, Roeselare, Belgium

E-mail address for P. Winnock de Grave: philip.winnockdegrave@azdelta.be

ORCID iD for P. Winnock de Grave: [0000-0002-7337-6944](https://orcid.org/0000-0002-7337-6944)

ORCID iD for T. Luyckx: [0000-0002-5440-6132](https://orcid.org/0000-0002-5440-6132)

ORCID iD for A. Ryckaert: [0000-0001-9426-4194](https://orcid.org/0000-0001-9426-4194)

Disclosure: The authors indicated that no external funding was received for any aspect of this work. On the Disclosure of Potential Conflicts of Interest forms, which are provided with the online version of the article, one or more of the authors checked "yes" to indicate that the author had a relevant financial relationship in the biomedical arena outside the submitted work (<http://links.lww.com/JBJS/EST/A258>).

This is an open-access article distributed under the terms of the [Creative Commons Attribution-Non Commercial-No Derivatives License 4.0](#) (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

ORCID iD for J. Noyez: [0000-0003-1425-5904](#)

ORCID iD for P. Gunst: [0000-0002-3260-324X](#)

ORCID iD for L. Van den Daelen: [0000-0003-1201-0057](#)

References

1. Winnock de Grave P, Barbier J, Luyckx T, Ryckaert A, Gunst P, Van den Daelen L. Outcomes of fixed-bearing, medial, cemented, unicondylar knee arthroplasty design: survival analysis and functional score of 460 cases. *J Arthroplasty*. 2018 Sep;33(9):2792-2799.
2. Bourne RB, Cheshire BM, Davis AM, Mahomed NN, Charron KD. Patient satisfaction after total knee arthroplasty: who is satisfied and who is not? *Clin Orthop Relat Res*. 2010 Jan;468(1):57-63.
3. Eckhoff DG, Bach JM, Spitzer VM, Reinig KD, Bagur MM, Baldini TH, Flannery NM. Three-dimensional mechanics, kinematics, and morphology of the knee viewed in virtual reality. *J Bone Joint Surg Am*. 2005;87(Suppl 2):71-80.
4. Hollister AM, Jatana S, Singh AK, Sullivan WW, Lupichuk AG. The axes of rotation of the knee. *Clin Orthop Relat Res*. 1993 May;290:259-68.
5. Bellemans J, Colyn W, Vandenneucker H, Victor J. The Chitraranjan Ranawat award: is neutral mechanical alignment normal for all patients? The concept of constitutional varus. *Clin Orthop Relat Res*. 2012 Jan;470(1):45-53.
6. Cobb J. Arthroplasty registries, patient safety and outlier surgeons: the case for change. *Acta Orthop Belg*. 2015 Dec;81(4):594-9.
7. Schwab PE, Lavand'homme P, Yombi JC, Thienpont E. Lower blood loss after unicompartmental than total knee arthroplasty. *Knee Surg Sports Traumatol Arthrosc*. 2015 Dec;23(12):3494-500. Epub 2014 Jul 26.
8. Siman H, Kamath AF, Carrillo N, Harmsen WS, Pagnano MW, Sierra RJ. Unicompartmental knee arthroplasty vs total knee arthroplasty for medial compartment arthritis in patients older than 75 years: comparable reoperation, revision, and complication rates. *J Arthroplasty*. 2017 Jun;32(6):1792-7. Epub 2017 Jan 24.
9. Cartier P, Cheaib S. Unicondylar knee arthroplasty. 2-10 years of follow-up evaluation. *J Arthroplasty*. 1987;2(2):157-62.
10. Argenson JN, Blanc G, Aubaniac JM, Parratte S. Modern unicompartmental knee arthroplasty with cement: a concise follow-up, at a mean of twenty years, of a previous report. *J Bone Joint Surg Am*. 2013 May 15;95(10):905-9.
11. Confalonieri N, Manzotti A, Pullen C. Comparison of a mobile with a fixed tibial bearing unicompartmental knee prosthesis: a prospective randomized trial using a dedicated outcome score. *Knee*. 2004 Oct;11(5):357-62.
12. Romagnoli S, Marullo M, Massaro M, Rustemi E, D'Amario F, Corbella M. Bi unicompartmental and combined uni plus patellofemoral replacement: indications and surgical technique. *Joints*. 2015 Jun 8;3(1):42-8.
13. Parratte S, Ollivier M, Lunebourg A, Abdel MP, Argenson JN. Long-term results of compartmental arthroplasties of the knee: long term results of partial knee arthroplasty. *Bone Joint J*. 2015 Oct;97-B(10)(Suppl A):9-15.
14. Vasso M, Del Regno C, D'Amelio A, Viggiano D, Corona K, Schiavone Panni A. Minor varus alignment provides better results than neutral alignment in medial UKA. *Knee*. 2015 Mar;22(2):117-21. Epub 2014 Dec 13.
15. Chatellard R, Sauleau V, Colmar M, Robert H, Raynaud G, Brilhault J; Société d'Orthopédie et de Traumatologie de l'Ouest (SOO). Medial unicompartmental knee arthroplasty: does tibial component position influence clinical outcomes and arthroplasty survival? *Orthop Traumatol Surg Res*. 2013 Jun;99(4)(Suppl):S219-25. Epub 2013 Apr 24.
16. Wiik AV, Manning V, Strachan RK, Amis AA, Cobb JP. Unicompartmental knee arthroplasty enables near normal gait at higher speeds, unlike total knee arthroplasty. *J Arthroplasty*. 2013 Oct;28(9)(Suppl):176-8.
17. Dalury DF, Fisher DA, Adams MJ, Gonzales RA. Unicompartmental knee arthroplasty compares favorably to total knee arthroplasty in the same patient. *Orthopedics*. 2009 Apr;32(4): orthosupersite.com/view.asp?ID=38057.
18. Shankar S, Tetreault MW, Jegier BJ, Andersson GB, Della Valle CJ. A cost comparison of unicompartmental and total knee arthroplasty. *Knee*. 2016 Dec; 23(6):1016-9. Epub 2016 Oct 31.
19. Vasso M, Del Regno C, Perisano C, D'Amelio A, Corona K, Schiavone Panni A. Unicompartmental knee arthroplasty is effective: ten year results. *Int Orthop*. 2015 Dec;39(12):2341-6. Epub 2015 Jul 2.