

Complications of TKA: Stiffness Open Arthrolysis

Pr E. Servien MD PhD, J. Erard, C. Batailler, S. Lustig
Orthopaedic surgery and sport medicine department
Lyon University Hospital, France



Introduction

- What is Stiffness ?



■ KNEE

International consensus on the definition and classification of fibrosis of the knee joint

N. S. Kalson, L. A. Borthwick, D. A. Mann, D. J. Deehan

VOL. 98-B, No. 11, NOVEMBER 2016

Knee



EFORT open reviews

The stiff total knee arthroplasty: causes, treatment modalities and results

E. Carlos Rodríguez-Menchón

Review

Knee. 2012 Dec;19(6):751-9. doi: 10.1016/j.knee.2012.02.010. Epub 2012 Apr 24.

Management of stiffness following total knee arthroplasty: a systematic review

H Ghani ¹, N Maffulli, V Khanduja

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

Acquired Idiopathic Stiffness After Total Knee Arthroplasty

A Systematic Review and Meta-Analysis

Meagan E. Tibbo, MD, Afton K. Limberg, BS, Christopher G. Salib, MD, Ahmed T. Ahmed, MB, BCh, Andre J. van Wijnen, PhD, Daniel J. Berry, MD, and Matthew P. Abdel, MD

- Limited flexion ?
- Flexion contracture ?
- Mixed stiffness ?

Introduction

Acquired Idiopathic Stiffness After Total Knee Arthroplasty

A Systematic Review and Meta-Analysis

COPYRIGHT © 2019 BY THE JOURNAL OF BONE AND JOINT SURGERY, INCORPORATED
Meagan E. Tibbo, MD, Afton K. Limberg, BS, Christopher G. Salib, MD, Ahmed T. Ahmed, MB, BCh,
Andre J. van Wijnen, PhD, Daniel J. Berry, MD, and Matthew P. Abdel, MD

- **What is Stiffness ?**
- Acquired idiopathic stiffness
- ROM **<90°** persisting for **>12 weeks** after pTKA
- Absence of complicating factors including preexisting stiffness
- Mean prevalence = **4%**
- Females and obese patients were at increased risk

Introduction

- What is Stiffness ?



■KNEE

International consensus on the definition and classification of fibrosis of the knee joint

N. S. Kalson, L. A. Borthwick, D. A. Mann, D. J. Deehan

VOL. 98-B, No. 11, NOVEMBER 2016

Acquired Idiopathic Stiffness After Total Knee Arthroplasty

A Systematic Review and Meta-Analysis

COPYRIGHT © 2019 BY THE JOURNAL OF BONE AND JOINT SURGERY, INCORPORATED
Meagan E. Tibbo, MD, Afton K. Limberg, BS, Christopher G. Salib, MD, Ahmed T. Ahmed, MB, BCh,
Andre J. van Wijnen, PhD, Daniel J. Berry, MD, and Matthew P. Abdel, MD

Knee



EFORT open reviews

The stiff total knee arthroplasty: causes, treatment modalities and results

E. Carlos Rodriguez-Menchin

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

Acquired Idiopathic Stiffness After Total Knee Arthroplasty

A Systematic Review and Meta-Analysis

Meagan E. Tibbo, MD, Afton K. Limberg, BS, Christopher G. Salib, MD, Ahmed T. Ahmed, MB, BCh,
Andre J. van Wijnen, PhD, Daniel J. Berry, MD, and Matthew P. Abdel, MD

Review

Knee. 2012 Dec;19(6):751-9. doi: 10.1016/j.j.knee.2012.02.010. Epub 2012 Apr 24.

Management of stiffness following total knee arthroplasty: a systematic review

H Ghani ¹, N Maffulli, V Khanduja

- Limited flexion <90°
- Flexion contracture > 10°
- Mixed stiffness : both associated

Options



4 options

MUA

Arthroscopic
arthrolysis

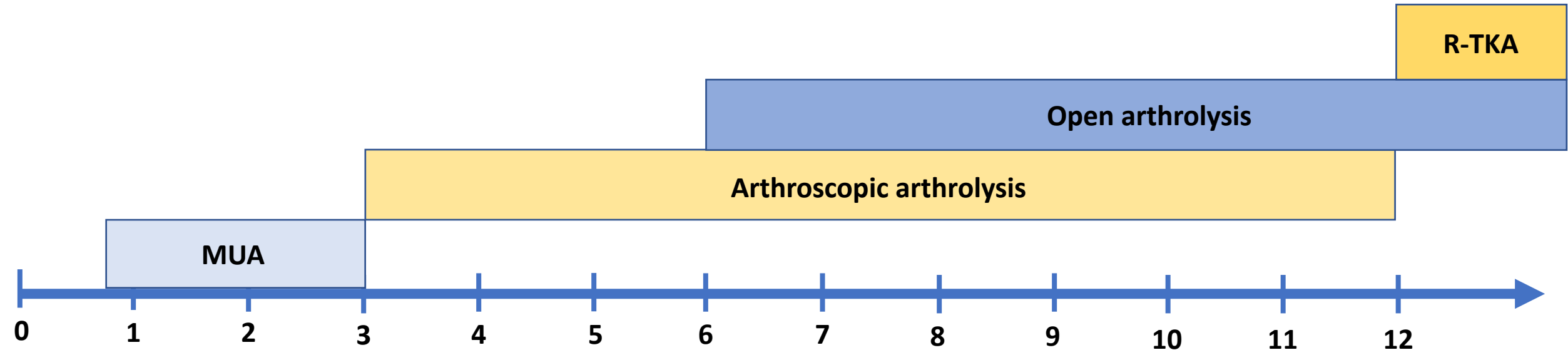
Open arthrolysis

TKA Revision

Options



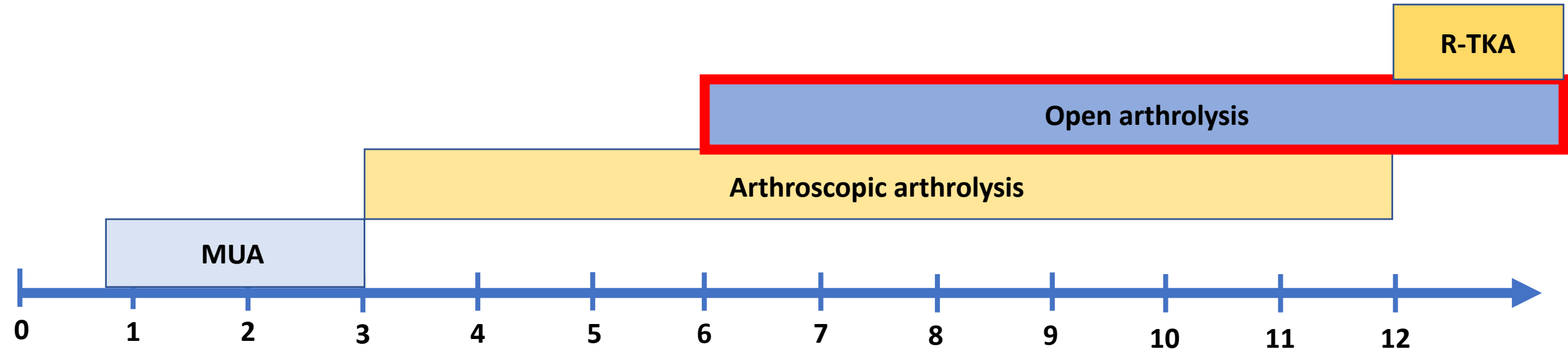
4 options



Options



4 options



Open Arthrolysis

- **When ?**

- Failure of intensive physiotherapy and/or MUA and/or Arthroscopic arthrolysis
- Delay > 6 months or > 1 year
- Significant flexion contracture

Review > [Clin Orthop Relat Res.](#) 2010 Apr;468(4):1096-106. doi: 10.1007/s11999-010-1230-y.
Epub 2010 Jan 20.

How to treat the stiff total knee arthroplasty?: a systematic review

Sean E Fitzsimmons ¹, Edward A Vazquez, Michael J Bronson

Comparative Study > [Rev Chir Orthop Reparatrice Appar Mot.](#) 2003 Feb;89(1):27-34.

[Management of stiffness after total knee arthroplasty: indication for different mobility management in 62 cases]

[Article in French]
F Tirveilliot ¹, H Migaud, F Gougeon, P Laffargue, C Maynou, C Fontaine

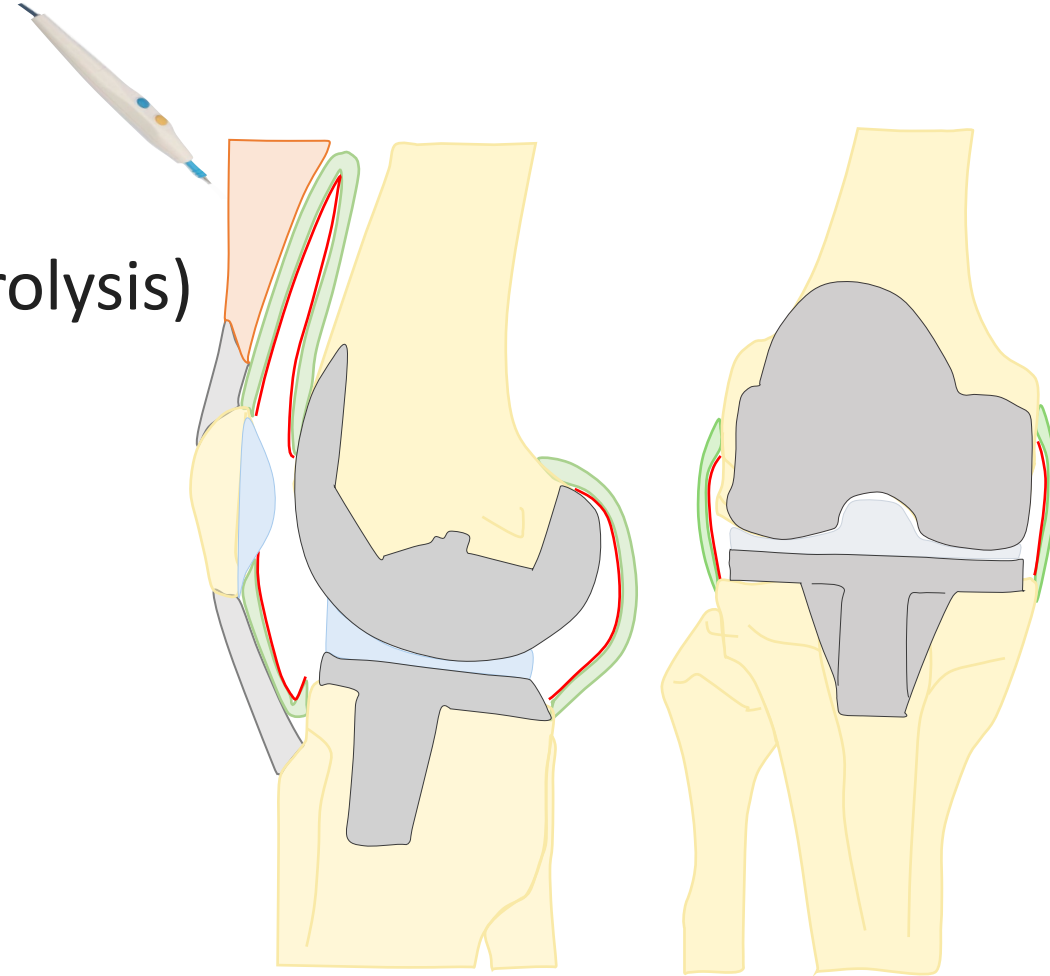
> [Clin Orthop Relat Res.](#) 2005 Nov;440:135-40. doi: 10.1097/01.blo.0000185312.43955.c8.

Revision total knee arthroplasty for restricted motion

James A Keeney ¹, John C Clohisy, Madelyn Curry, William J Maloney

Open Arthrolysis

- Same approach
- Articular and/or extra articular (Judet arthrolysis)
- Extensive synovectomy
- Supra patellar release
- Medial and lateral gutters release
- Posterior release
- Para patellar lateral release



Open Arthrolysis

Flexion contracture

- « Cleaning » the notch
- PE removal
- Posteromedial & posterolateral release

Flexion deficit

- Extensive release
- Judet ?



Flexion and extension deficit?

- Change in PE size

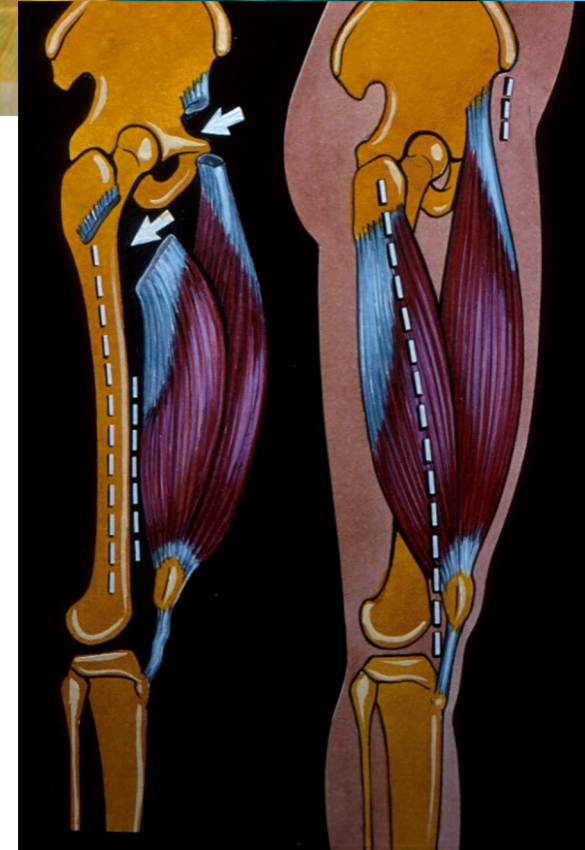
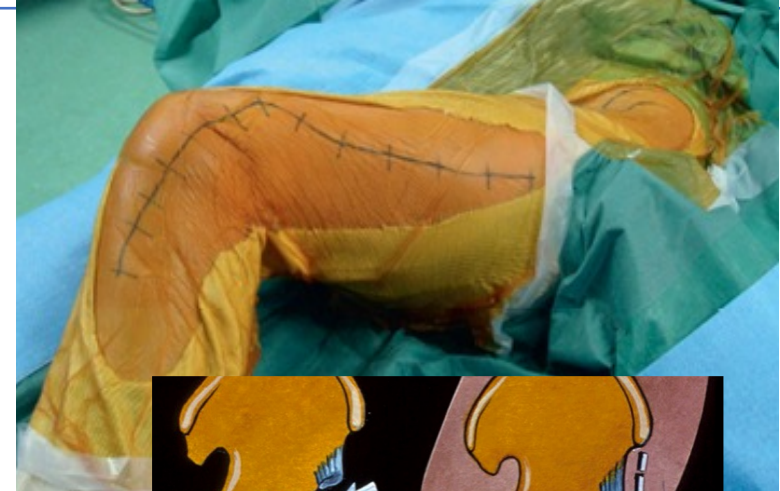
Open Arthrolysis

Flexion contracture

- « Cleaning » the notch
- PE removal
- Posteromedial & posterolateral release

Flexion deficit

- Extensive release
- Judet ?



Open Arthrolysis

French multicenter study results (SOFCOT 2024)



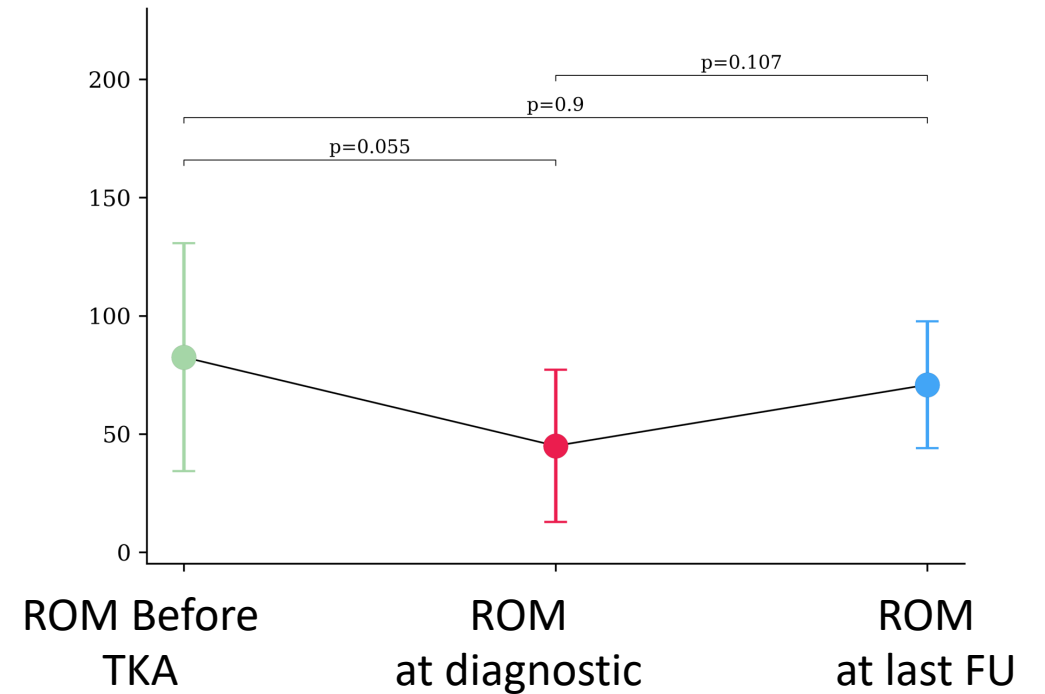
ROM

Extension 0° (0-15°)

Flexion 80° (40-120°)

Δ Flexion 23° (0-40°)

Last FU



Open Arthrolysis

French multicenter results (SOFCOT 2024)



PROMS

Last Follow Up

✓ Oxford 23

✓ KOOS

° Symptoms 57

° Daily activities 43

° Quality of life 16

✓ FJS-12 57

✓ Satisfaction 91% Disappointed

° Pain 47

° Sports / Activity 18



Open Arthrolysis

Systematic review Ghani et al. (25 studies)

- Delay : 14 to 31 months
- 38° ROM improvement
- Clinical score
 - KSS function 46 to 33
 - KSS pain 40 to 44
 - Knee society score 72 to 77



Open Arthrolysis

Interest in polyethylene change

- Babis et al.
 - 7 knees
 - No improvement in ROM
- Keeney et al.
 - 23 knees
 - 12 PE replacement and 11 TKA revision
 - Better ROM isolated PE replacement group (25° vs. 18°)

Poor Outcomes of Isolated Tibial Insert Exchange and Arthrolysis for the Management of Stiffness Following Total Knee Arthroplasty

Babis, George C. MD; Trousdale, Robert T. MD; Pagnano, Mark W. MD; Morrey, Bernard F. MD

The Journal of Bone & Joint Surgery 83(10):p 1534-1536, October 2001.

CLINICAL ORTHOPAEDICS AND RELATED RESEARCH
Number 440, pp. 135-140
© 2005 Lippincott Williams & Wilkins

Revision Total Knee Arthroplasty for Restricted Motion

*James A. Keeney, MD**; *John C. Clohisy, MD†*; *Madelyn Curry, RN‡*; and
William J. Maloney, MD‡

Open Arthrolysis

When ? Why?

allows greater posterior release & replacement of the insert by a thinner model



Orthopaedics & Traumatology: Surgery &
Research

Available online 22 November 2024, 104060

[In Press, Corrected Proof](#) [?](#) [What's this?](#)



Review article

Revision for stiff knee after knee replacement

Sophie Putman^{a b} , Paul-Antoine André^b, Gilles Pasquier^b, Julien Dartus^b

Take Home Message

- **Rarely performed**
- **Failure of MUA / arthroscopic arthrolysis**
- **Not related to TKA**
- **Might be a good option for flexion contracture**
- **Allows modification of PE size**
- **Variable and uncertain results**



Thank you

