



Liigese endoproteesimine – sajandi operatsioon

Aare Märtson
Tartu Ülikool
Tartu Ülikooli Kliinikum



Miks selline pealkiri?

The operation of the century: total hip replacement

Ian D Learmonth, Claire Young, Cecil Rorabeck

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Department of Orthopaedics,

Bristol Royal Infirmary,

Bristol BS2 8HW, UK

(Prof I D Learmonth FRCS);

Cumberland Infirmary,

Carlisle CA2 7HY, UK

In the 1960s, total hip replacement revolutionised management of elderly patients crippled with arthritis, with very good long-term results. Today, young patients present for hip-replacement surgery hoping to restore their quality of life, which typically includes physically demanding activities. Advances in bioengineering technology have driven development of hip prostheses. Both cemented and uncemented hips can provide durable fixation. Better materials and design have allowed use of large-bore bearings, which provide an increased range of motion with enhanced stability and very low wear. Minimally invasive surgery limits soft-tissue damage and facilitates accelerated discharge and rehabilitation. Short-term objectives must not compromise long-term performance. Computer-assisted surgery will contribute to reproducible and accurate placement of implants. Universal economic constraints in healthcare services dictate that further developments in total hip replacement will be governed by their cost-effectiveness.



Miks ortopeedid endoproteesivad liigeseid?

Liigese endoproteesimise käigus vahetatakse haigestunud/kahjustatud luu ja liigesepinnad tehismaterjalidega, mis võimaldavad taastada liigese valutut funktsiooni. Kuigi kõik liigese endoproteesimised ei pruugi kulgeda ladusalt on suur osa neist suurepärase tulemusega ja patsiendid võivad operatsioonijärgselt loota olulist paranemist



ORIGINAL ARTICLE



Why Patients Visit Their Doctors: Assessing the Most Prevalent Conditions in a Defined American Population

Jennifer L. St. Sauver, PhD, MPH; David O. Warner, MD; Barbara P. Yawn, MD, MSc; Debra J. Jacobson, MS; Michaela E. McGree, BS; Joshua J. Pankratz, BS; L. Joseph Melton III, MD, MPH; Véronique L. Roger, MD, MPH; Jon O. Ebbert, MD; and Walter A. Rocca, MD, MPH

Results: We included a total of 142,377 patients, 75,512 (53%) of whom were female. Skin disorders (42.7%), osteoarthritis and joint disorders (33.6%), back problems (23.9%),.....

$33,6+23,9=57,5\%$
skeleti-lihaskonna haigused





Sir John Charnley



- 1950.aa edukas puusaliigese endoproteesimine
- PMMA



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The Insall Legacy in Total Knee Arthroplasty

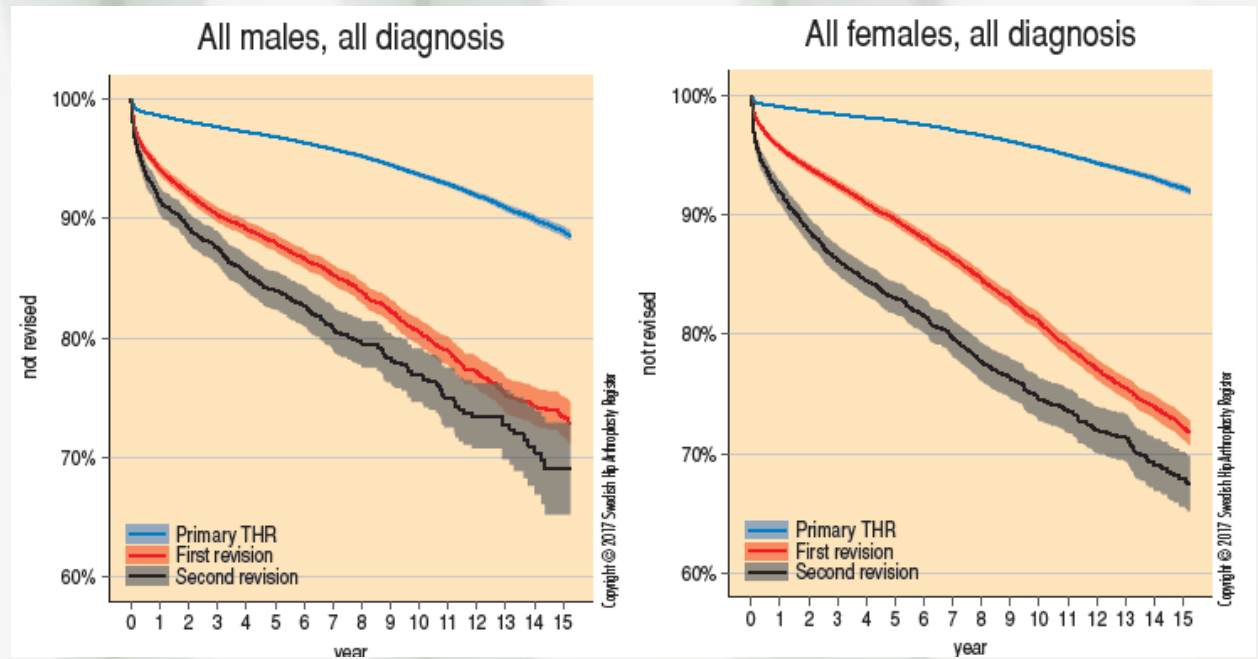
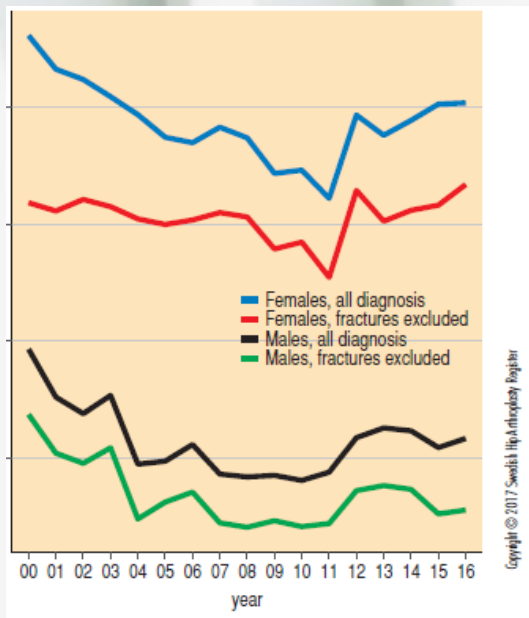
*Giles R. Scuderi, MD; W. Norman Scott, MD;
and Gregory H. Tchejeyan, MD*



A-B. (A) The Duopatellar Prosthesis and (B) the Duocondylar Prosthesis are shown.

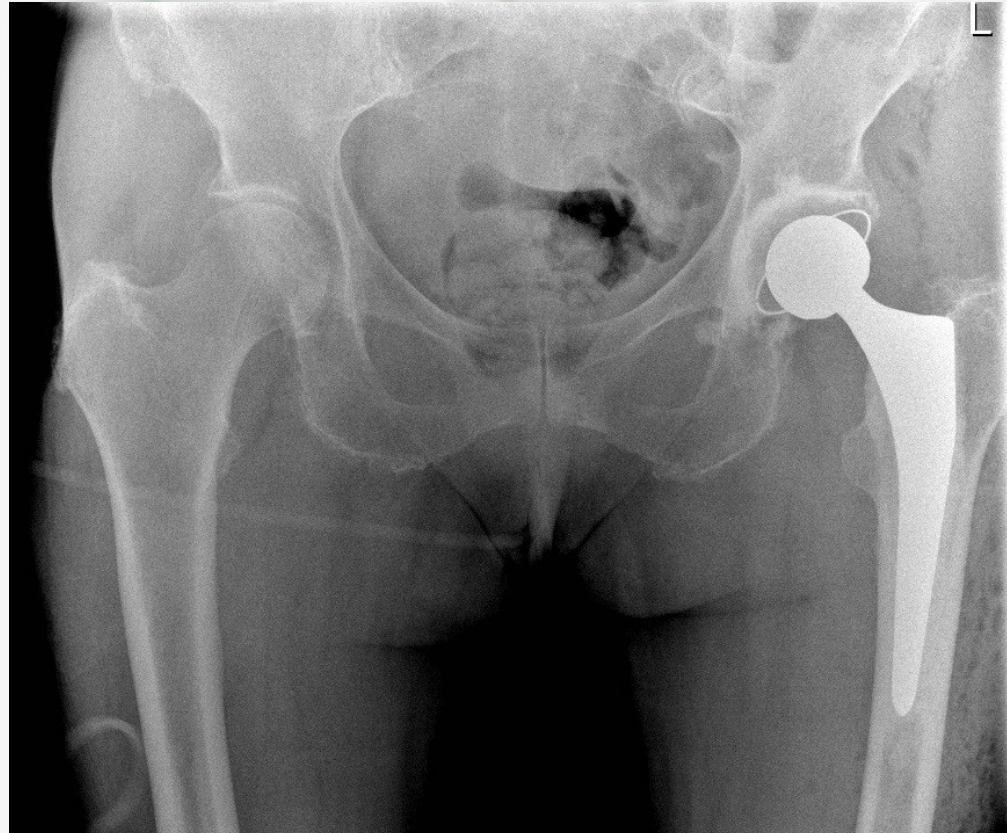


Rootsi puusaliigese endoproteesimise registri andmed (~260000 pt)





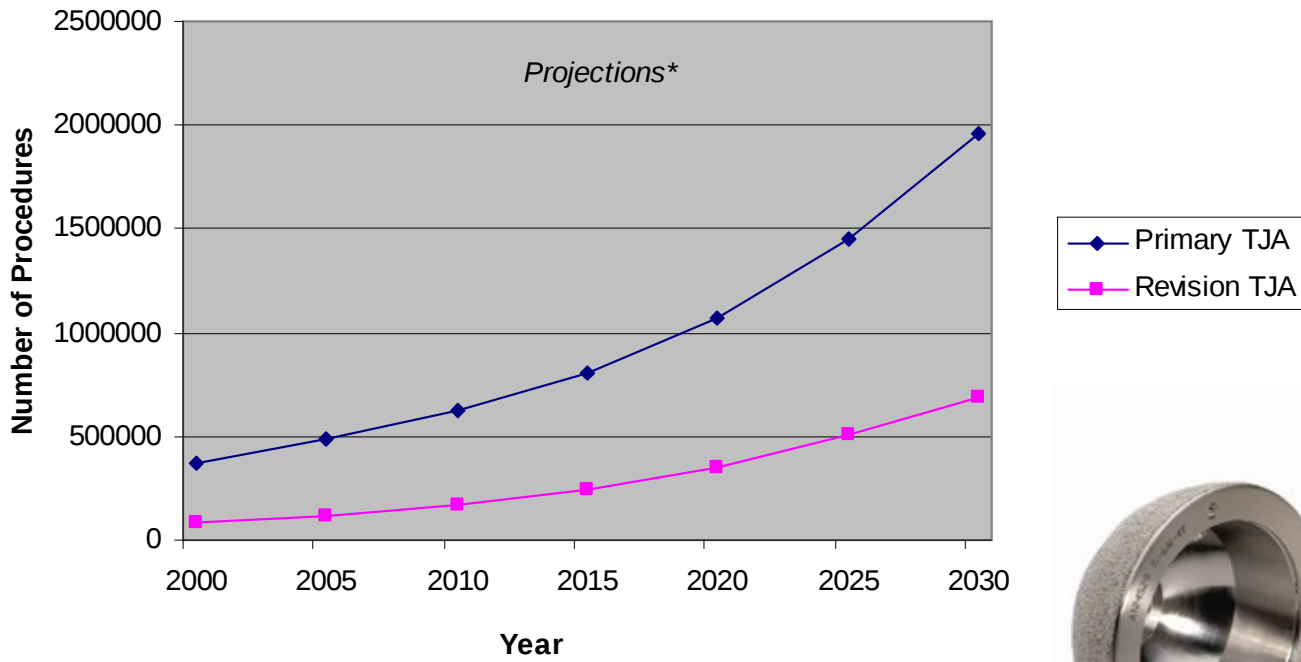
Patsient I.V 85 a.





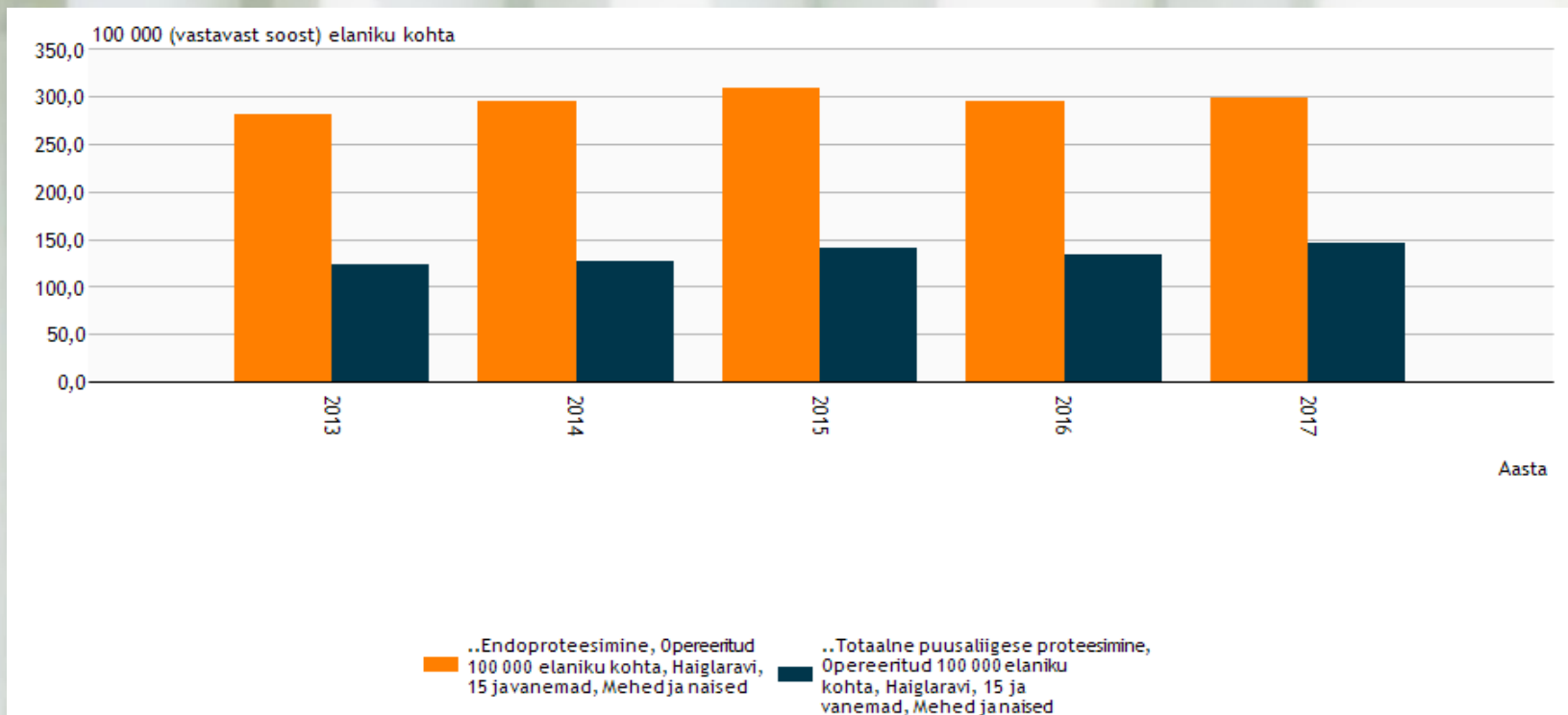
Endoproteesimise mahtude kasv

Primary and Revision TJA Procedures Performed in the US





Liigeste endoproteesimine Eestis op/100000 elaniku kohta





Liigese endoproteesimise põhiprintsiibid

- näidustus, op. planeerimine
- implantaat, fikseerimine
- hea operatsioonitehnika
- postop ravi ja rehabilitatsioon
- regulaarne jälgimine
- tulemuste hindamine (skaalad)
- püsivuse hindamine

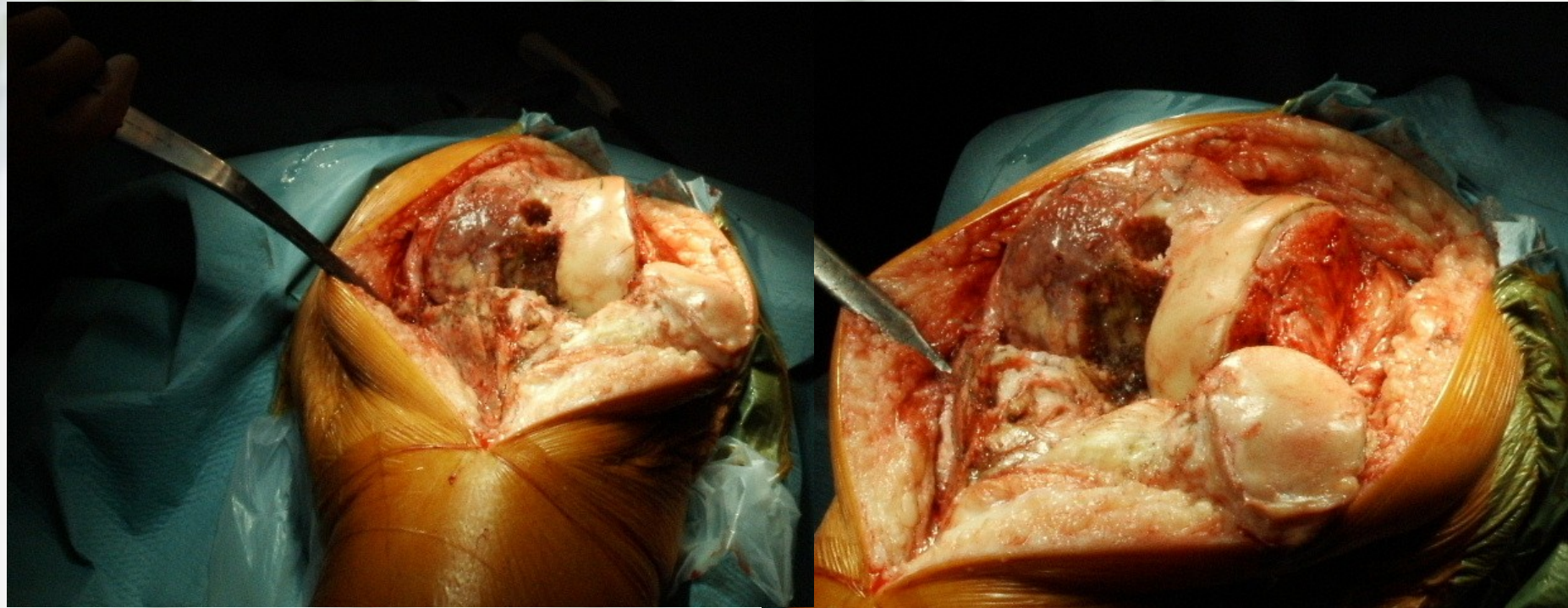


Peamised haigused endoproteesimiseks

- osteoartroos
- reumatoidartriit
- osteonekroos
- podagra
- traumajärgsed seisundid
- luukasvajad



Avaskulaarne nekroos



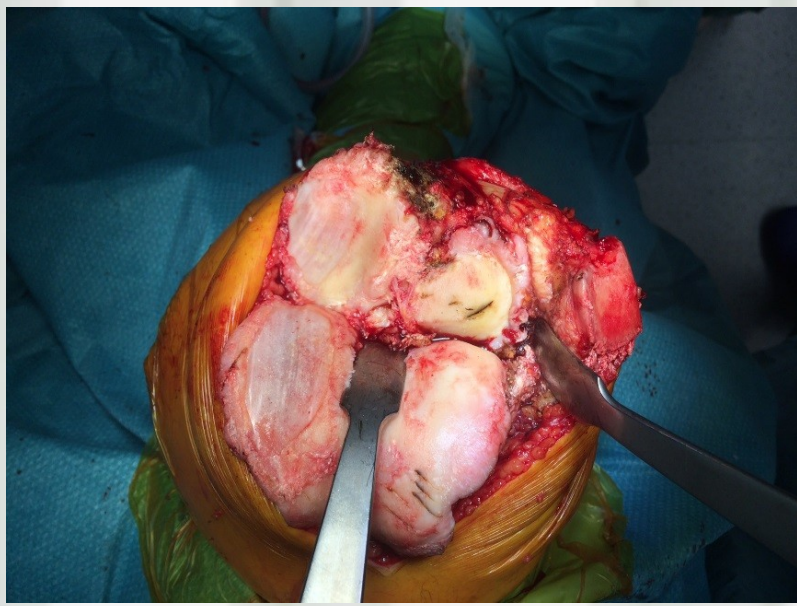


Patsient N.V.14a.



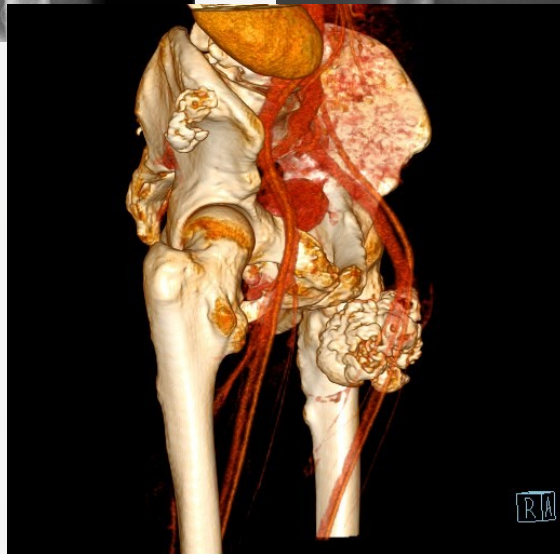
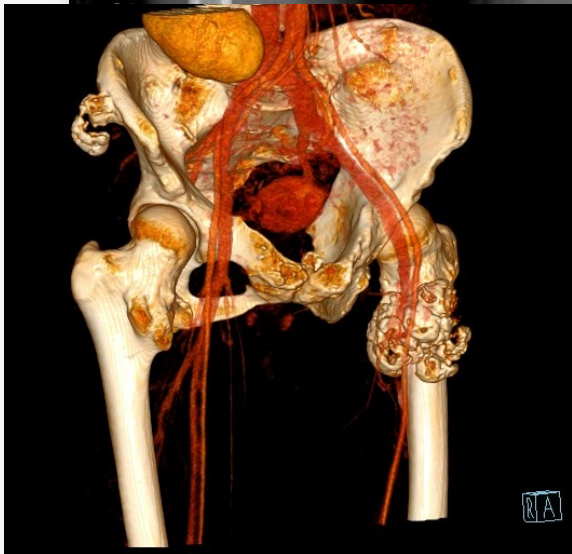
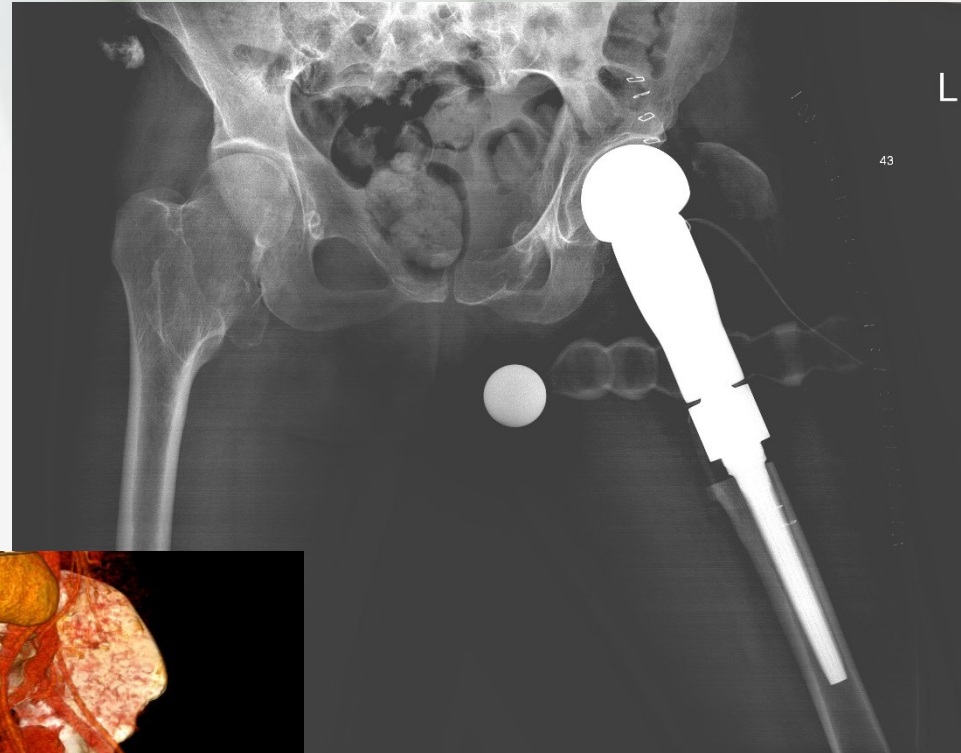


Patsient N.T. 77a.





Patsient K.M. 37-48a.



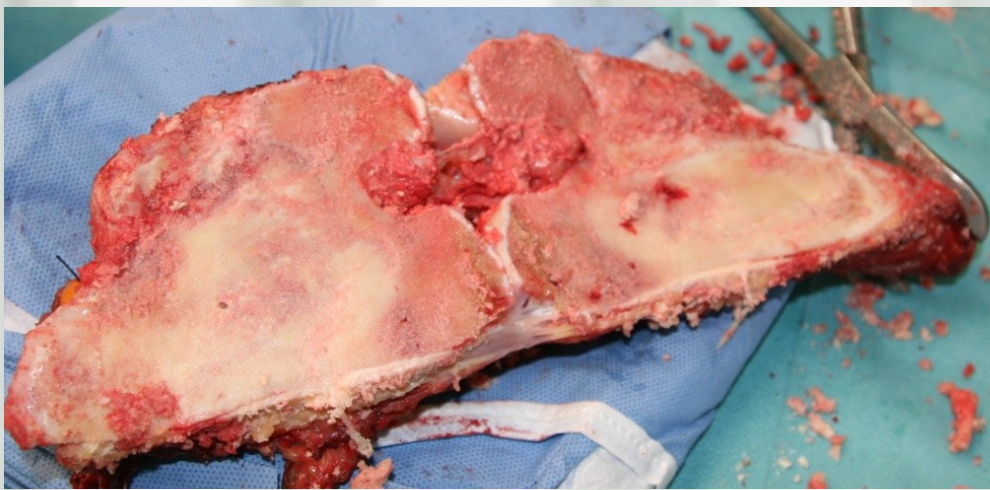
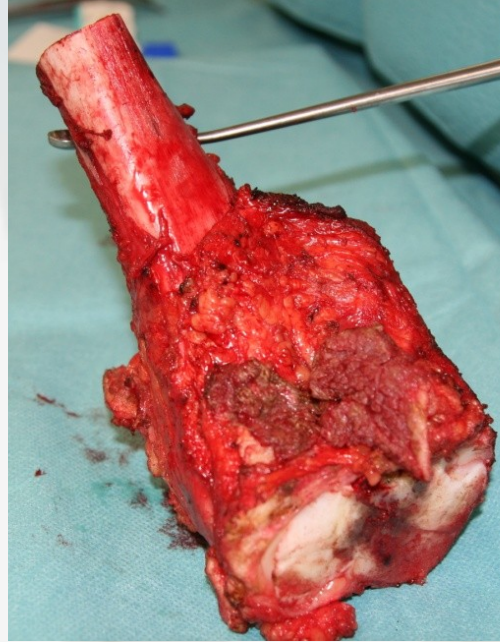


Patsient T.A. 75a.



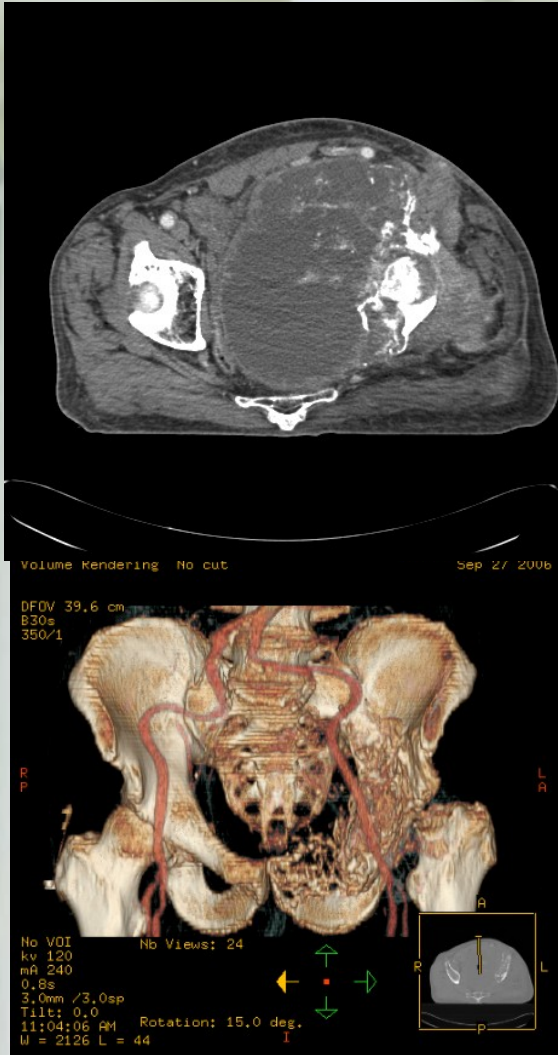


K.S.16 a.□





S.V.71 yrs □





Which Patients Are Most Likely to Benefit From Total Joint Arthroplasty?

Gillian A. Hawker,¹ Elizabeth M. Badley,² Cornelia M. Borkhoff,³ Ruth Croxford,⁴
Aileen M. Davis,⁵ Sheila Dunn,⁶ Monique A. Gignac,⁵ Susan B. Jaglal,¹
Hans J. Kreder,⁷ and Joanna E. M. Sale⁸

In conclusion, in a population cohort with hip/knee arthritis, approximately half of the patients experienced a good outcome as defined by improvements in overall hip/knee pain or disability following a single, primary TJA. **The probability of a good outcome, regardless of the definition, was higher with greater preoperative pain and disability, less comorbidity, fewer troublesome hips or knees, and in individuals with OA versus those with inflammatory arthritis.** As demand for TJA increases, there is an urgent need to identify patient factors that are associated with a high likelihood of experiencing a net clinical benefit, in particular the degree of arthritis severity at which the benefits of TJA are likely to outweigh potential risks. Better understanding of the determinants of a “good” TJA outcome will enable the development of tools to assist policy makers, patients, and clinicians in making recommendations and decisions regarding the provision of TJA.

**Parem tulemus
patsiendil, kellel
suurem valu ja
deformatsioon!**



Ära opereeri naisi

- kellel on rohkem kui 2 kassi
- kellel on rohkem, kui 2 allergiat
- kes on 2 mehe vahel
- Kes on lesestunud vähem kui 1 kuu tagasi



Ära opereeri mehi

- Kellel on rohkem kui 2 kuldketi
- Kes kannab päikesepriile kabinetti tulles
- Kes kannab valgeid kingi talvel
- Kes tuleb emaga, kuigi on >50 a. vana



Faktorid, mis mõjutavad operatsiooni tulemust

- Vanus
- Kehakaal
- Füüsiline aktiivsus
- Motivatsioon
- Luu kvaliteet
- Operatsioonitehnika
- Proteesi tüüp
- Fiksatsioon
- Biomaterjalid



Patsient S.I. 53a.□





Patsient S.I. 53a.□





Inacio et al. *BMC Musculoskeletal Disorders* (2016) 17:122
DOI 10.1186/s12891-016-0970-6

BMC Musculoskeletal
Disorders

RESEARCH ARTICLE

Open Access

Opioid use after total hip arthroplasty surgery is associated with revision surgery



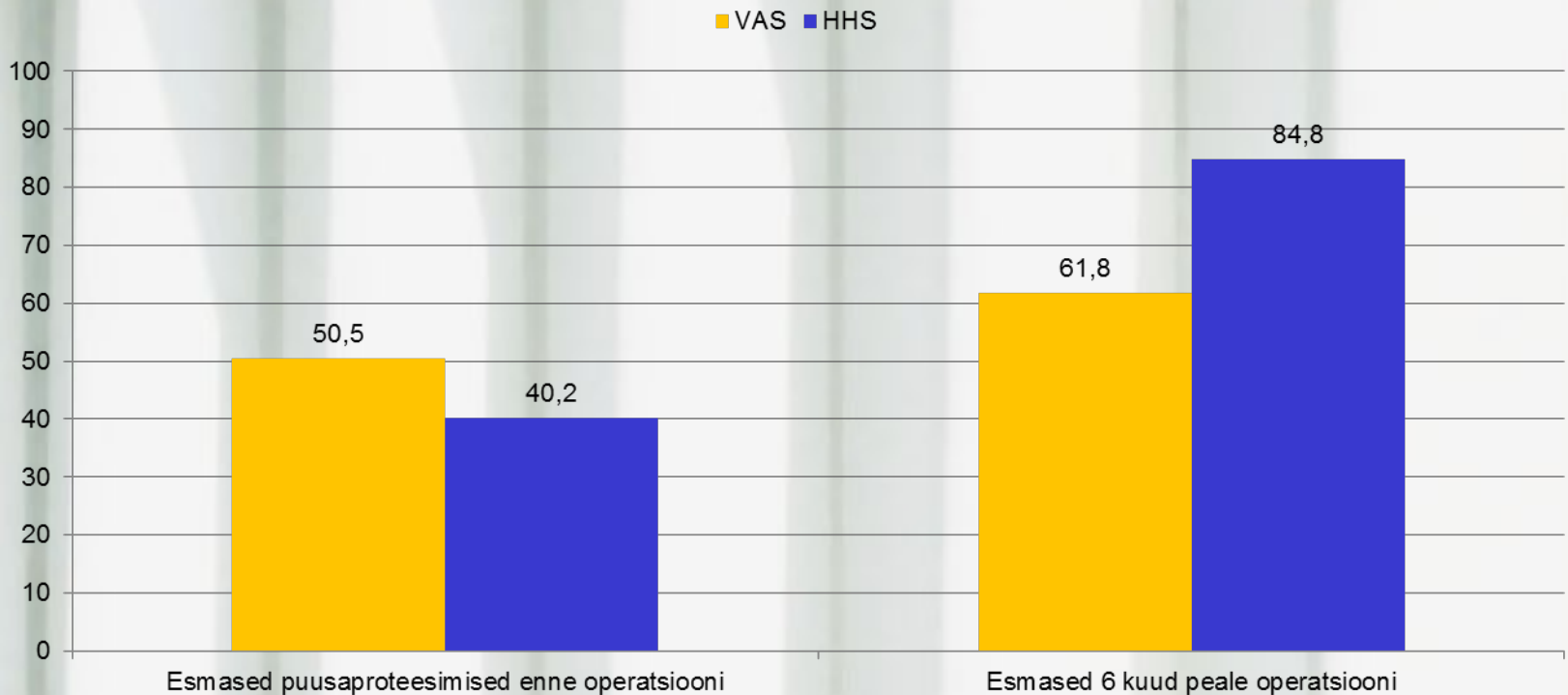
Maria C. S. Inacio^{MS, PhD^{1*}}, Nicole L. Pratt^{PhD^{1,2}}, Elizabeth E. Roughead^{PhD^{1,2}}, Elizabeth W. Paxton^{MA³} and Stephen E. Graves^{MD, PhD⁴}

Conclusions: Opioid use 91–180 days post-surgery is associated with higher risk of revision surgery and therefore is an early and useful indicator for surgical failure.

Opioidide pikaajaline kasutamine mõjutab patsiendi rahulolu ja suurendab revisjonoperatsiooni riski

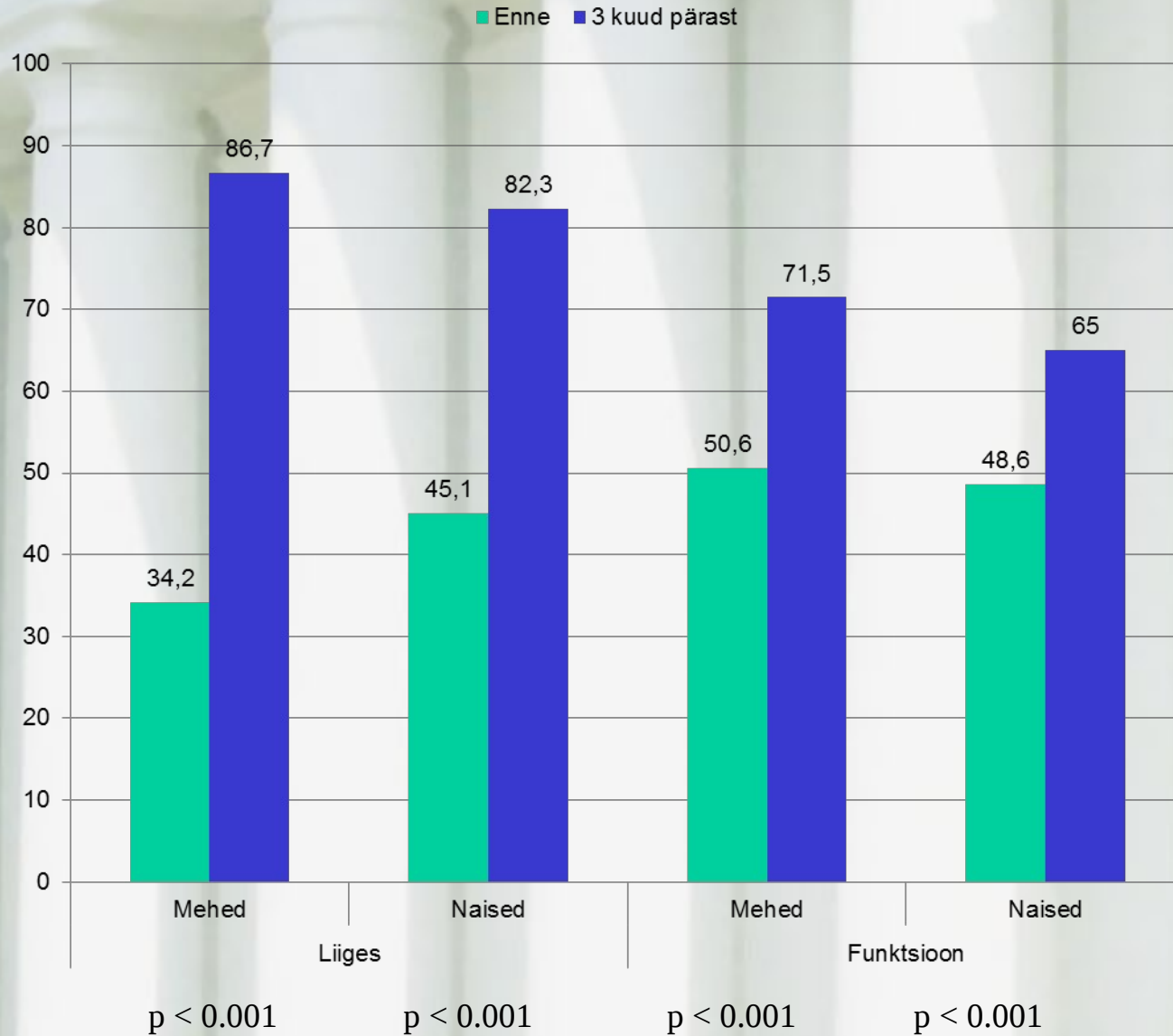


Puusaproteesimised VAS vs HHS






Põlveproteesimised-KSS





RESEARCH

Appraisal of evidence base for introduction of new implants in hip and knee replacement: a systematic review of five widely used device technologies

 OPEN ACCESS

Marc J Nieuwenhuijse *research fellow ICOR and FDA*^{1,2,3}, R G H H Nelissen *professor*², J W Schoones *information specialist*⁴, A Sedrakyan *associate professor*^{1,3}

Conclusion: We did not find convincing high quality evidence supporting the use of five substantial, well known, and already implemented device innovations in orthopaedics. Moreover, existing devices may be safer to use in total hip or knee replacement. Improved regulation and professional society oversight are necessary to prevent patients from being further exposed to these and future innovations introduced without proper evidence of improved clinical efficacy and safety.

- Uued arendused?
- Parem regulatsioon



Nõuded implantaadi materjalidele

- Bioloogiline sobivus
- Korrosioonile vastupidavus
- Mehhaaniline tugevus
- Kulumiskindlus
- Kvaliteedi kontroll
- Mõistlik hind





Sulamid

Roostevaba teras

Co-Cr sulam

Titaan

Ta, Ag, Cu

Polümeerid

PMMA

UHMWPE

Keraamika

Al oksiid

Zr oksiid





Wolfgang Pauli



„God made solids, but surfaces were the work of the devil“,

Wolfgang Pauli (1900-1958, Nobeli preemia 1945)



Kulumine sõltuvalt materjalist



© Mr. Stuart Edwards Orthopaedic Surgeon Hip and Knee
Kilkenny Ireland



Endoproteesimise ebaõnnestumine

- Liugpindade kulumine
- Loksumaminek
- Osteolüüs
- Infektsioon
- Ebastabiilsus
- Luumurd endoproteesi läheduses
- Endoproteesi murdumine



<https://www.youtube.com/watch?v=d0ndPYKbas4>





Patsient R.H. 56a.





Patsient A.L. 54a.





Küsimused

- Loksumaminek
- Infektsioon
- Kõrvaltoimed
 - Valu
 - Turse
 - Sünoviit/vedelikukogum liigeses
- Kaasuvad haigused
- Ravimite koostoime
- Vananemise bioloogia



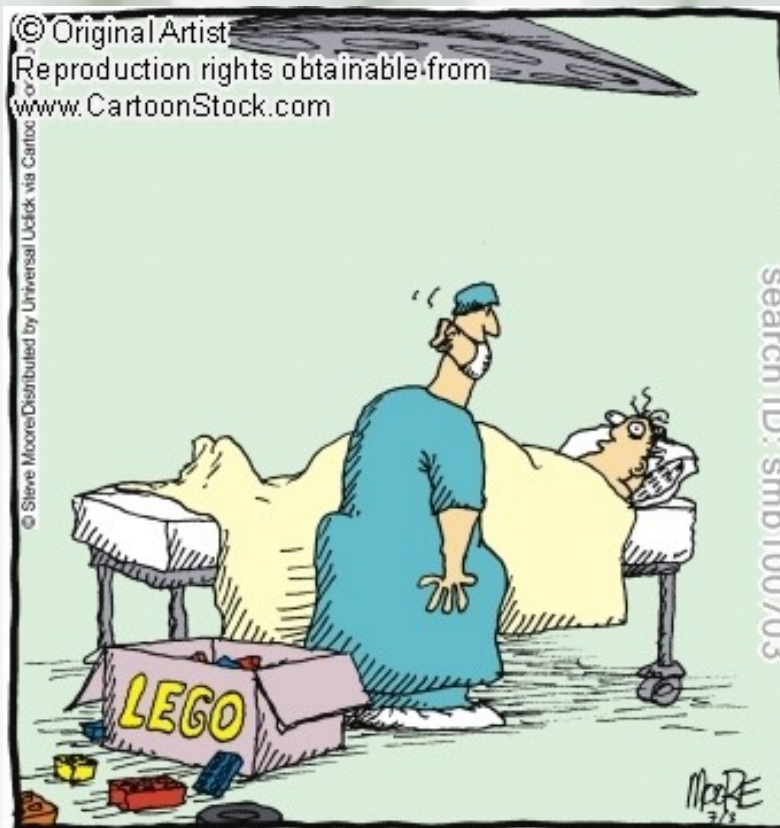
Tulevik?

- Haigus(t)e biotehnoloogilised lahendused
- „tagavaraosade tootmine“
 - kunstmaterjalidest
 - bioloogilised

Kas vajame personaalmeditsiini!



Täna tähelepanu eest!



"Surgery went well, Mr. Moore. I had a lot of fun rebuilding your knee joint."