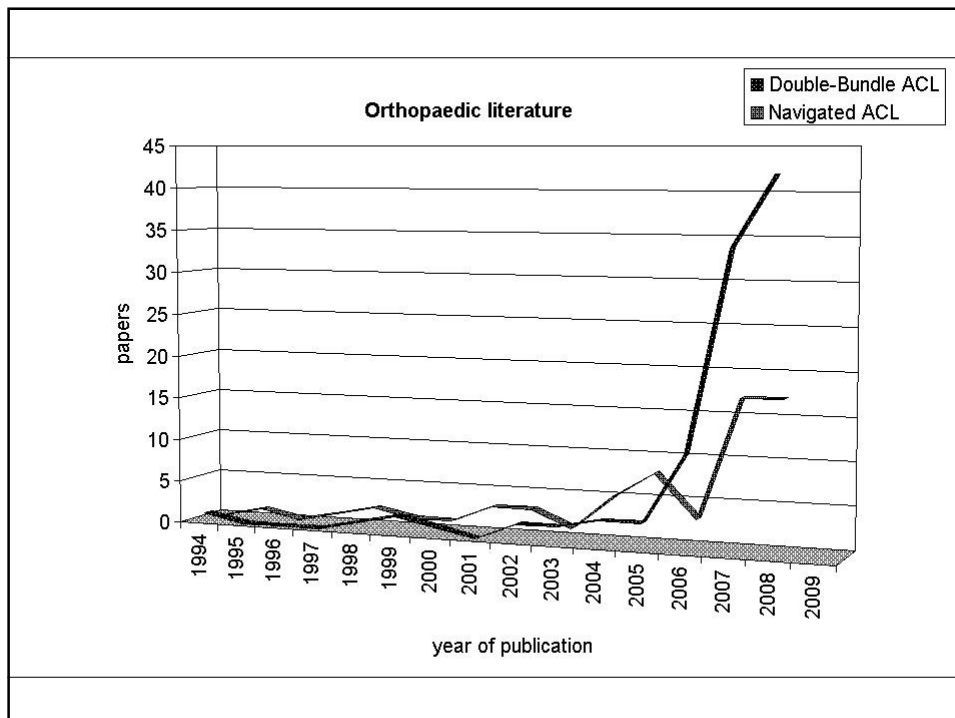


CAOS ACL
*Four Generations in ACL
Navigation, Cost Efficiency*

10TH Biennial
ISAKOS 2015
CONGRESS

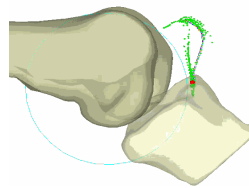
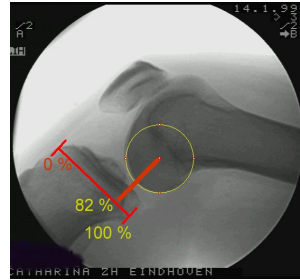
JUNE 7-11, 2015  LYON, FRANCE

- Burt Klos MD ICONE Netherlands

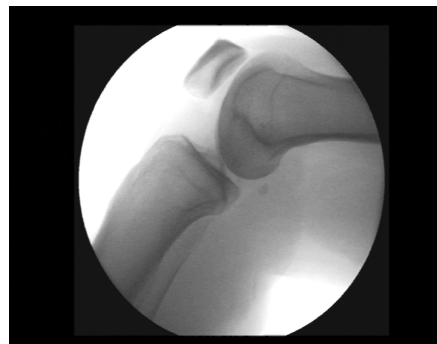


CAOS generations

- 1. CAS Drill hole placement
- 2. Quality control (laxity pre-post-contralat)
- 3. Kinematics (Pivot Shift , collateral damage)
- 4. A la carte reconstruction >
 - ACL one / double
 - Extra articular
 - Medial collateral
 - Combined ACL / Osteotomy



Fluoroscopic laxity AP

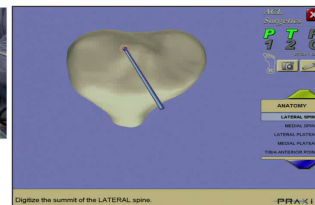
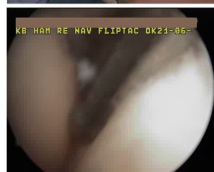


Individual decision making (4)

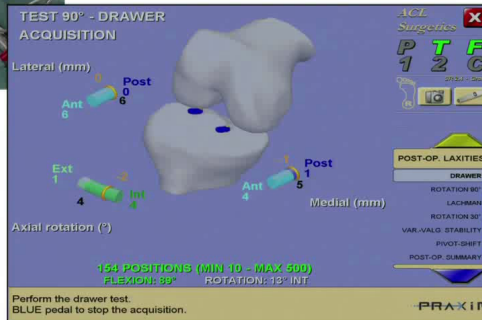
- Knee Surgery Sports Traumatology Arthroscopy 2008
- Simone Bignozzi, Stefano Zaffagnini,
 - Does a lateral plasty control coupled translation during antero-posterior stress in single-bundle ACL reconstruction?
 - An in vivo study
- CORR 2007
- Stefano Zaffagnini, Simone Bignozzi, Sandra Martelli, Nicola Lopomo, Maurilio Marcacci
 - Does ACL Reconstruction Restore Knee Stability in Combined Lesions? An In Vivo Study



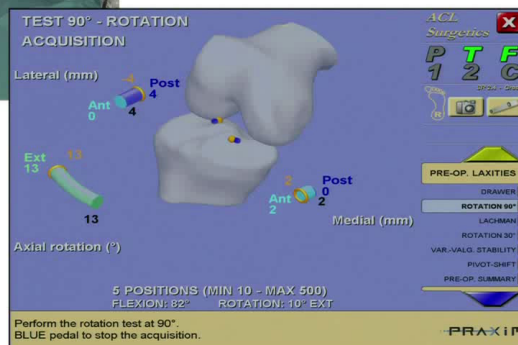
References frames / bone modelling

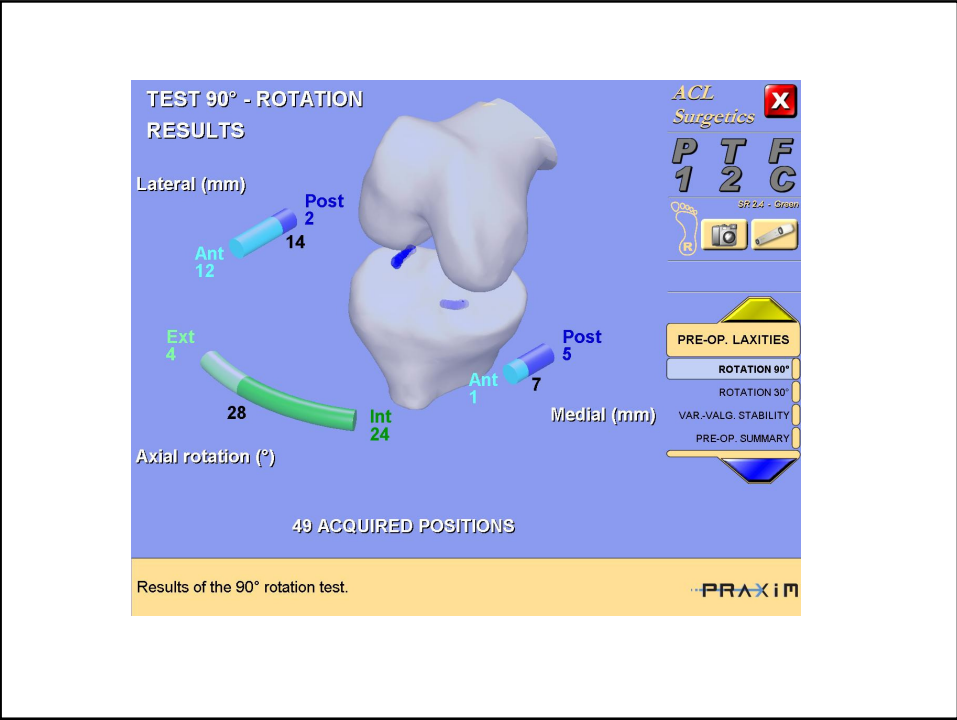


Laxity check

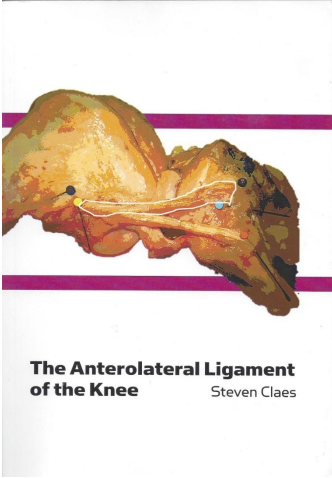
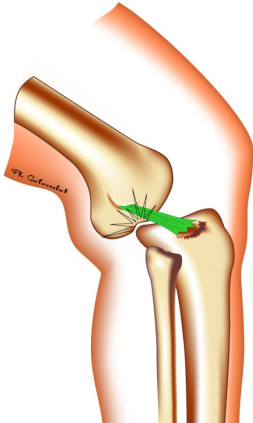


Rotation

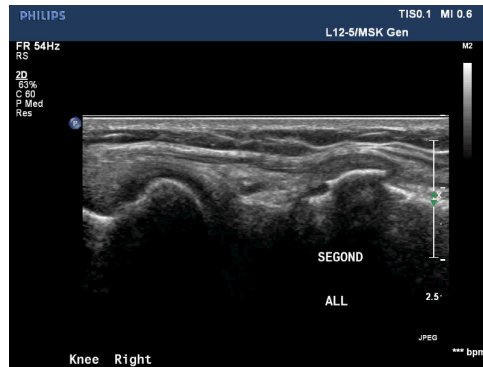




Combined lesions.

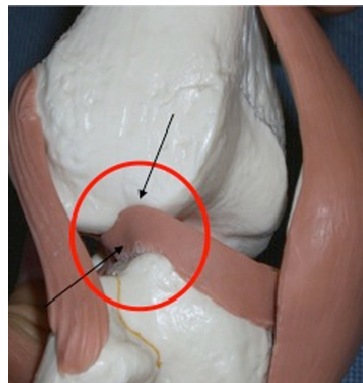
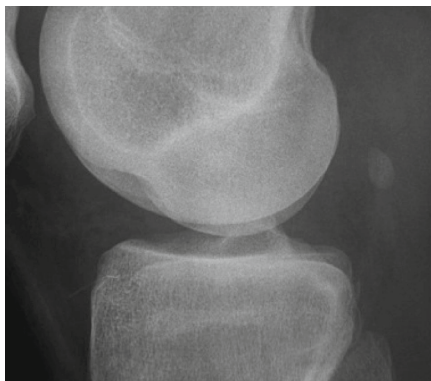


Segond fractuur



Ch Fink A 2014 KSSTA

- Lateral notch sign 26,4 % (MRI and X)

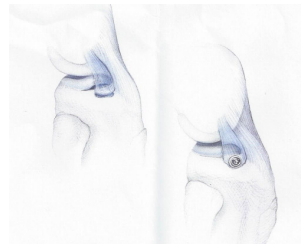


- Courtesy Ch Fink (A)

Imaging Segond avulsion

- Incidence in MRI 3 % Resnick USA
- Incidence in X ray CORR Hess D 9 %
- Incidence ultrasound 33 % (ICONE)

- Higher velocity trauma ?
- Refixation / Feagin :



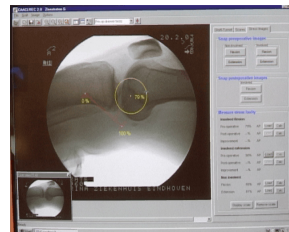
ALL relation with Segond # ?



ICONE Orthopaedics & Sports
Traumatology

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Discussion

- [Am J Sports Med.](#) 2015 Apr 30
- **Economic Analyses in Anterior Cruciate Ligament Reconstruction: A Qualitative and Systematic Review.**
- **Procedures using CAOS do not yield results that are superior with substantial greater costs .**

Cost effectiveness analysis

- Influencing factors costs of
- admission US vs Eur 4/5 x
- procedure/ surgery US vs Eur $\frac{3}{4}$ x
- Rehabilitation Fysio Costs US 14000
- Diagnosis/ imaging MRI costs :
 - US 1500-2000 Eur 300-500

Costs of navigation

- Disposables 100-200 euro pp
- Hardware 50000
- Software 30000

ACL Navigation Conclusion

- 1st generation training tool
- 2nd generation quality control > future
- 3th generation research tool
- 4th a la carte > High Tech centres for complex cases