



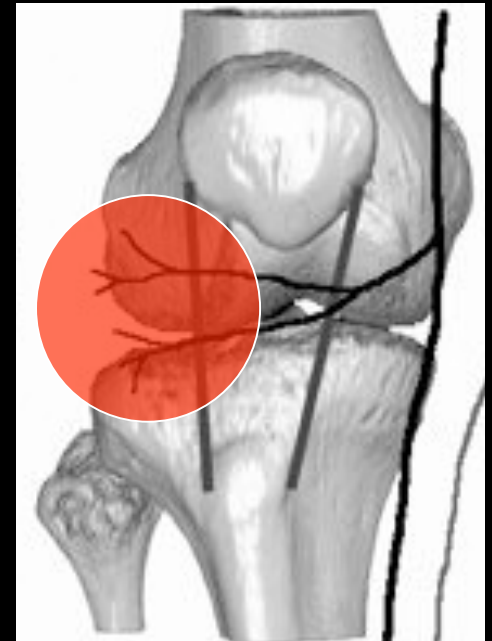
Results of a **New Mini-Invasive Approach for BTB Harvesting**

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Lyon Ortho Clinic

Dans le cadre de la présente communication, les auteurs ont bénéficié d'une mise à disposition de matériel par la société Smith & Nephew

Infrapatellar Nerve Injury

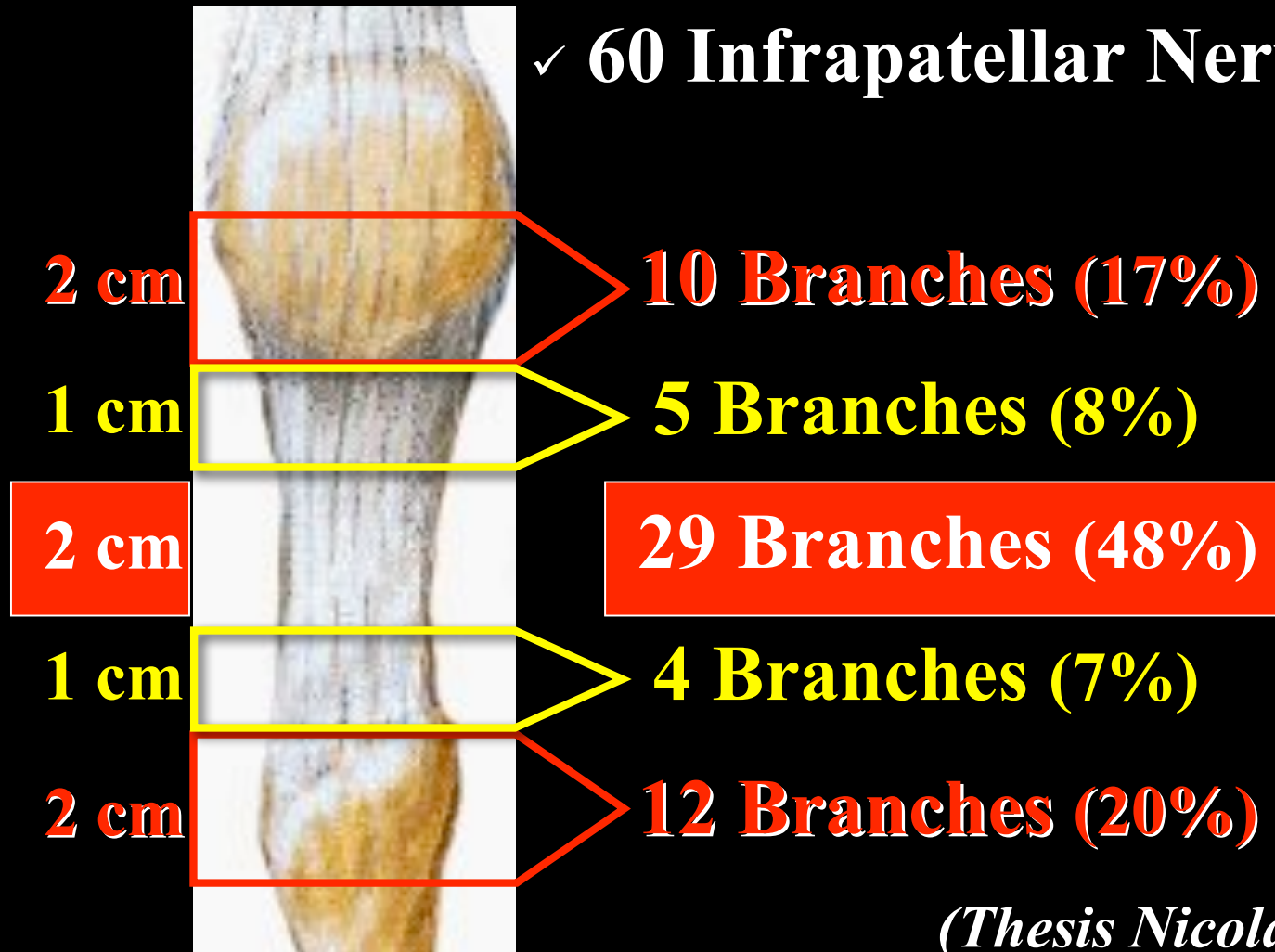
- **Loss or Disturbed Anterior Knee Sensitivity**
 - ✓ **J.Kartus** (KSSTA 1999; 15)
 - Mean Sensitivity Loss 16 cm²
 - Correlated to Anterior Knee Pain
 - Correlated to Kneeling Difficulties
 - ✓ **Beaufils et al** (RCO 2007; 93(8))
- **Painfull Infrapatellar Neuroma**
 - ✓ **T.D.Tenner** (JRSocMed 1998; 91: 573-575)



Cadaveric Study - 38 Knees

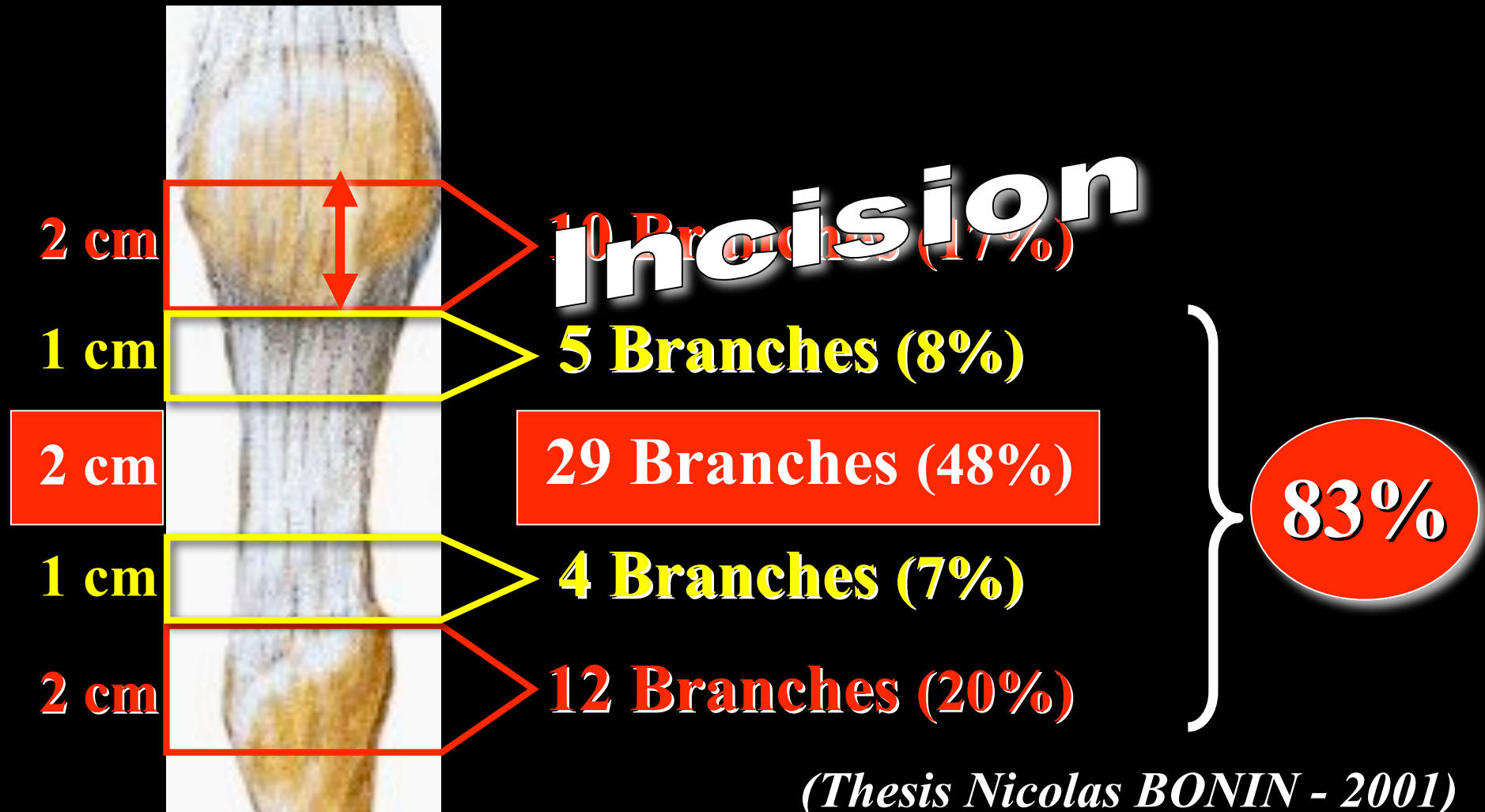
- Infrapatellar Nerve / Patellar Tendon

✓ 60 Infrapatellar Nerve Branches



(Thesis Nicolas BONIN - 2001)

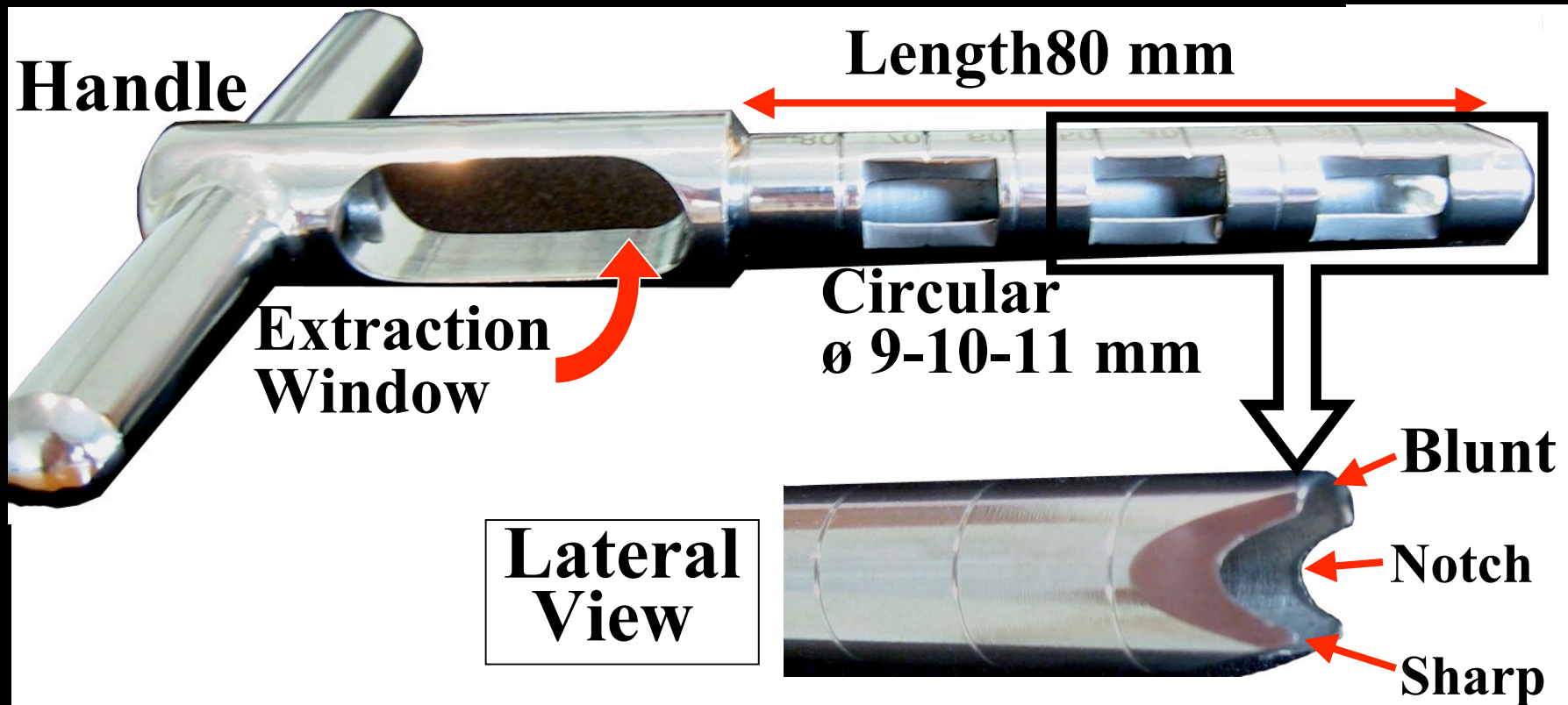
Our BTB Harvesting Procedure



(Thesis Nicolas BONIN - 2001)

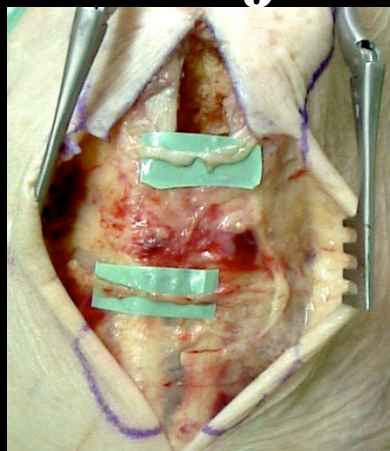
Harvesting Device

Superior View



Cadaveric Study

- 27 Fresh Frozen Cadaver Knees
- Harvesting Consecutive Series
- BTB Procurement Analysis
- Infrapatellar nerve/ Paratenon injuries Analysed

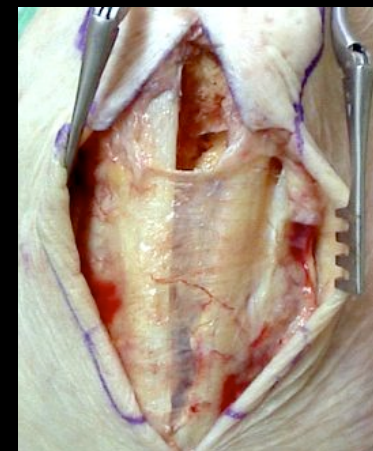


84%



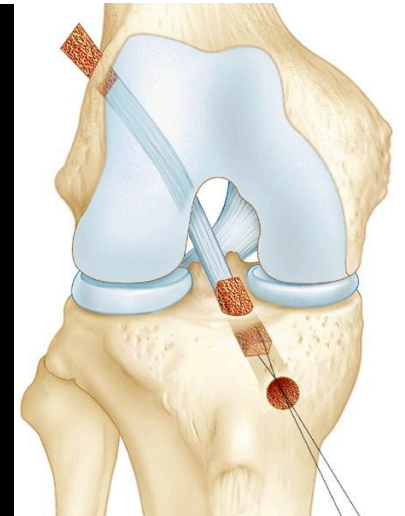
SFA'06

85%



Clinical Study

- 25 BTB ACL Reconstruction
 - **Outside-in Technique**
 - Tibial bone plug press-fit locking
 - Interference screw for tibial tunnel
- Consecutive Series
- Procurement Analysis
 - Harvesting procedure last
 - Incision size
 - Graft size
 - Harvesting problems



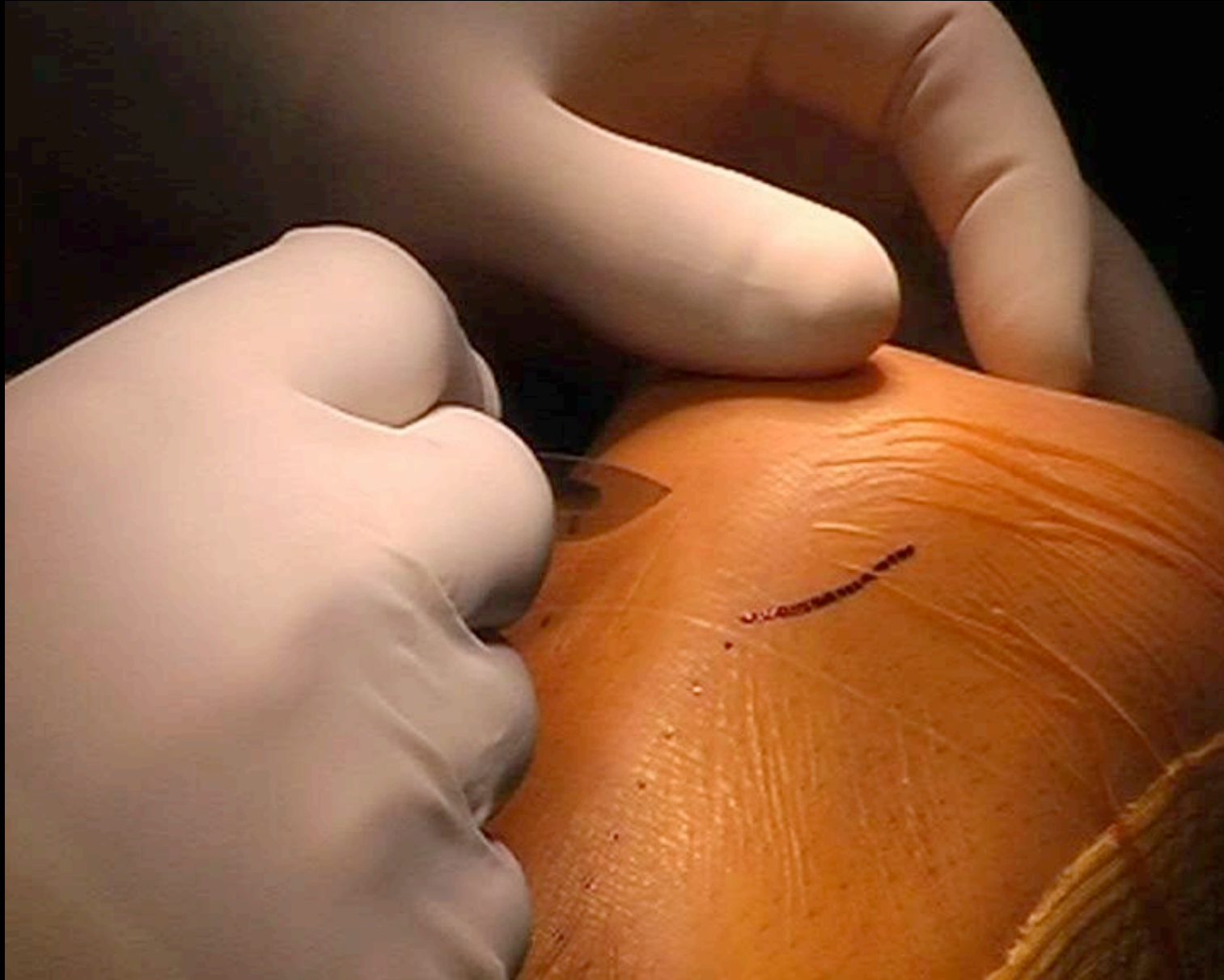
➔ SFA'07

Clinical Study

- **Prospective comparative Study**
 - **2 Randomized Groups**
 - **MIS Procedure (25 patients)**
 - **Standart Procedure (20 patients)**
 - **F.U. > 6 months**
 - **IKDC Subjective Questionnary**
 - **Lillois score**
 - **IKDC Objective Form / Telos ®**
 - **Patellar Tendon Echography**

Independant Observer

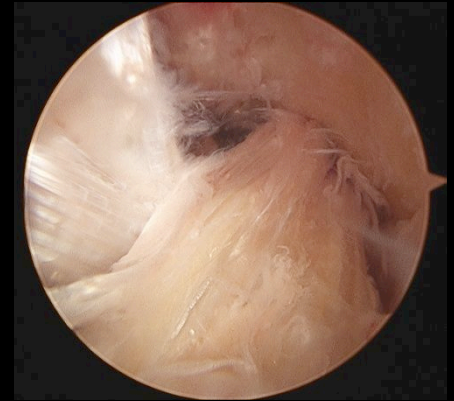
Surgical Technique



Procurement Analysis

- Harvesting difficulties

- **Conversion : 2 cases**
 - Ineffective tourniquet
 - 1 Bad Graft !!



- Excellent Cylindrical Graft

- **15 Cases**



- Average Quality Graft

- **5 Tendon to Bone Junction Weakened**
- **3 Tibial Bone Plug < 14 mm**

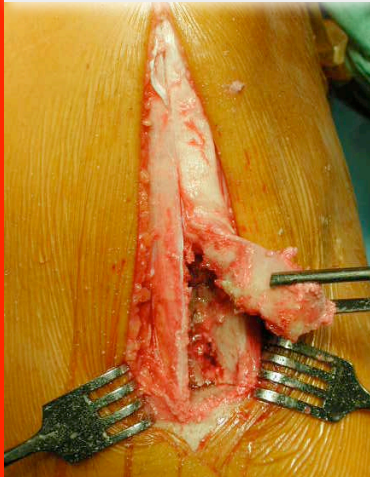


F.U.
18/20

Subjective Results

F.U.
18/23

Standart



IKDC Subj. Questionnary

85/100
(70 - 100)

MIS



85/100
(73 - 97)

« Lillois score »

94/100

93/100

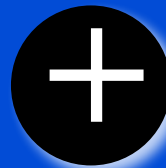
Anterior Knee Pain

4/18

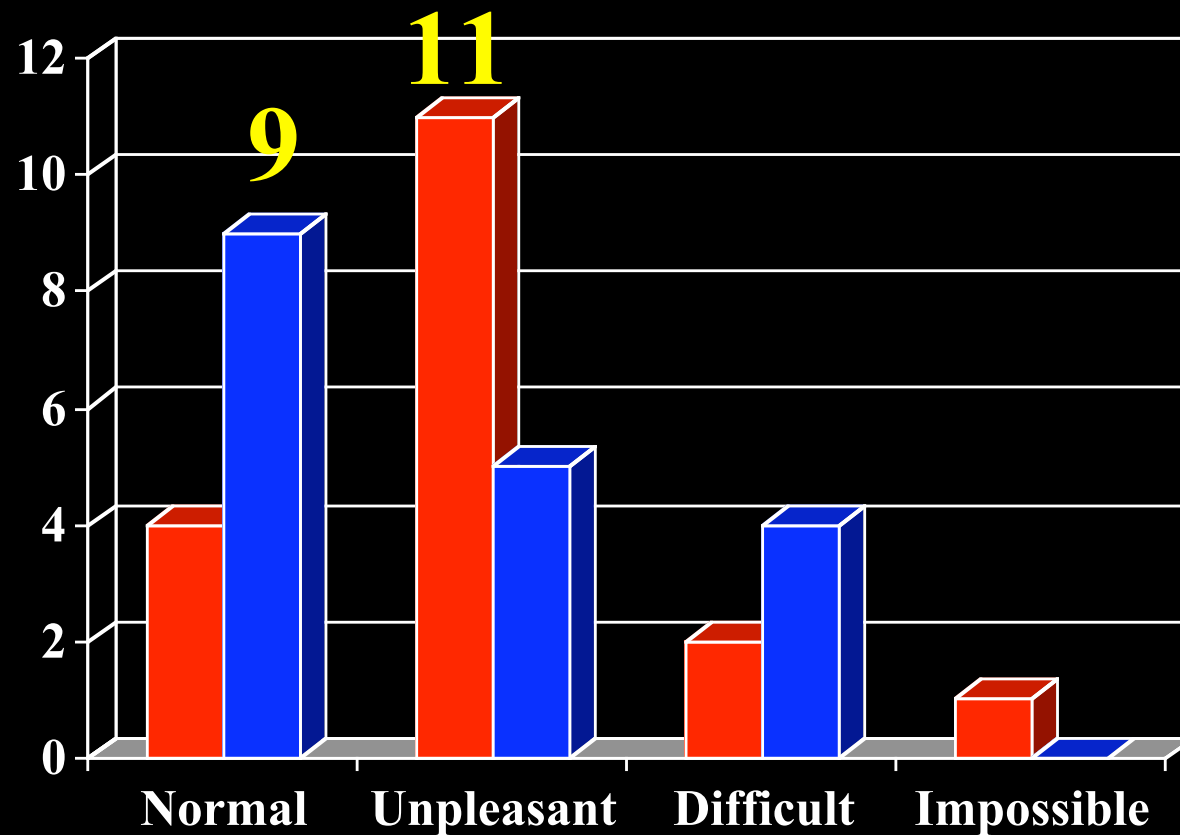
6/18

Knee Walking Test

Standart

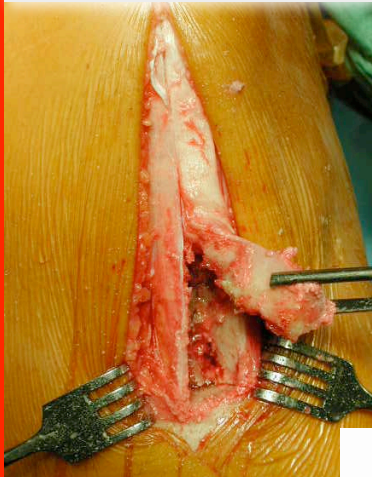


MIS



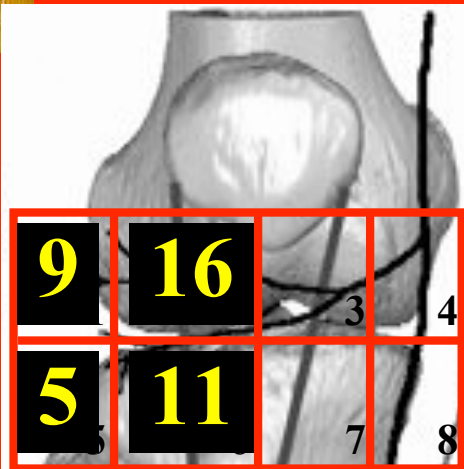
Anterior Knee Sensitivity

Standart



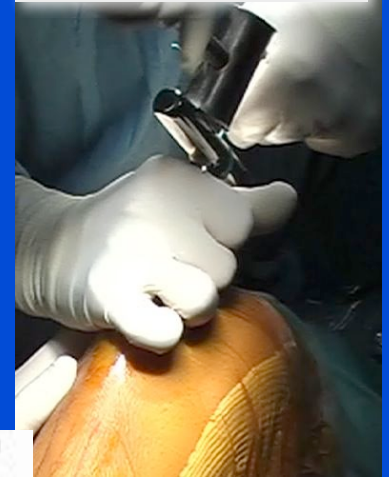
Sensitivity Loss

**16/18
(10 cm²)**

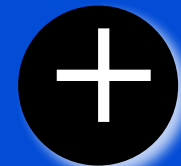
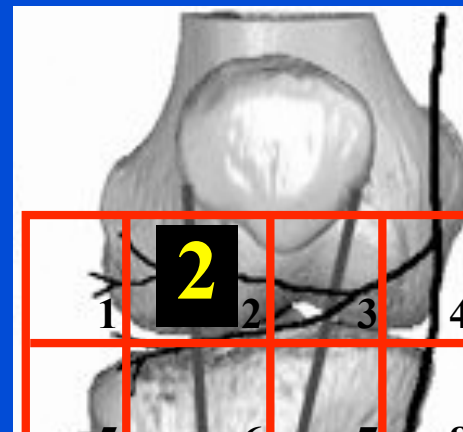


Beaufils *et Al.* RCO 2007

MIS



**2/18
(4 cm²)**



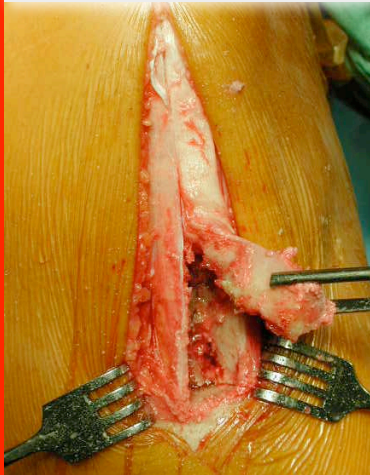
**Infrapatellar Nerve
Preservation**

F.U.
18/20

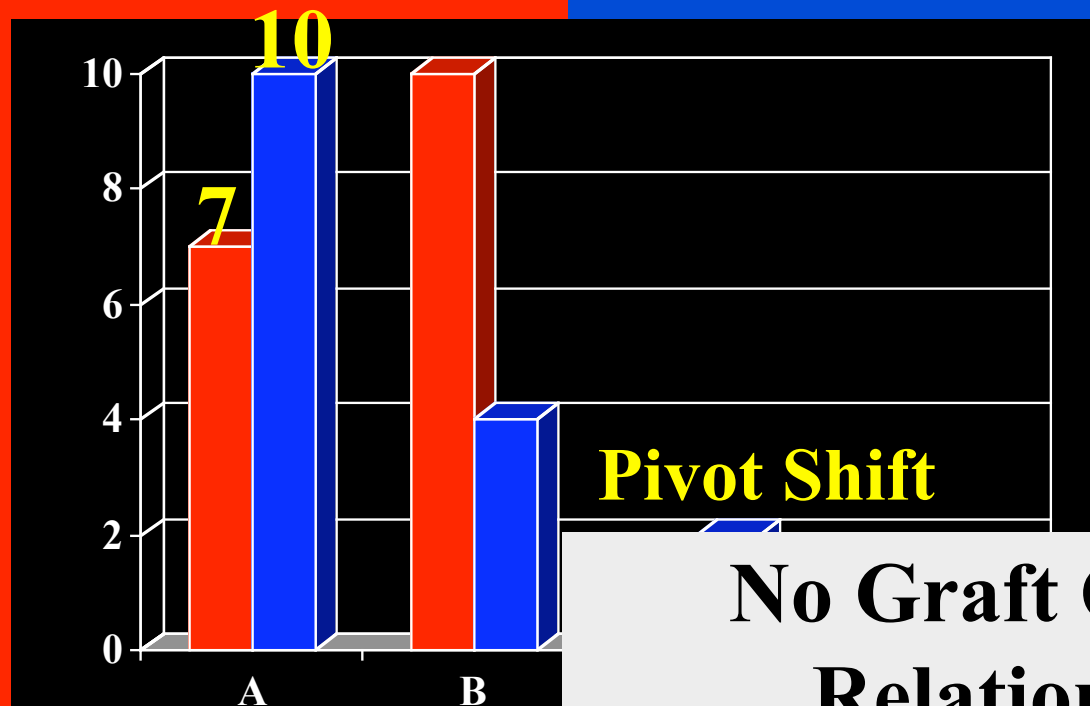
IKDC Objective Form

F.U.
16/23

Standart



MIS



Pivot Shift

**No Graft Quality
Relationship**

F.U.

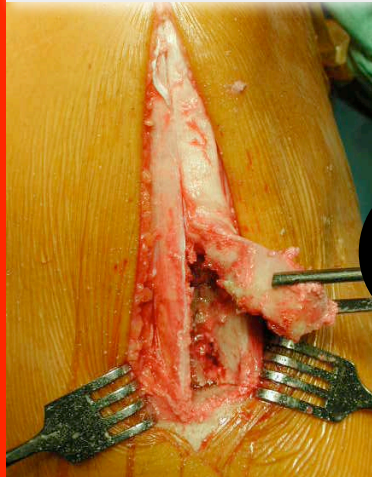
15/20

Telos ®

F.U.

15/23

Standart



ATT - Medial Comp. (mm)

Pre-op.

10.2

74%

Post-op.

2.6

ATT - Lateral Comp. (mm)

Pre-op.

13.5

63%

Post-op.

5

MIS



7.8

65%

2.8

13

69%

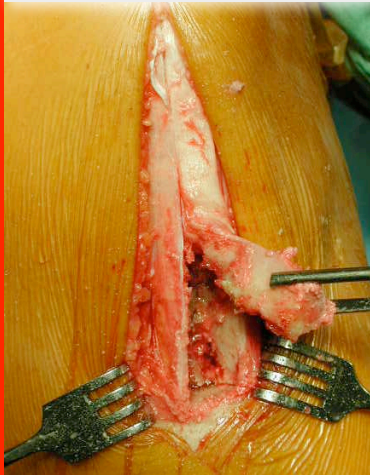
**No Graft Quality
Relationship**

F.U.
15/20

P.T. Echography

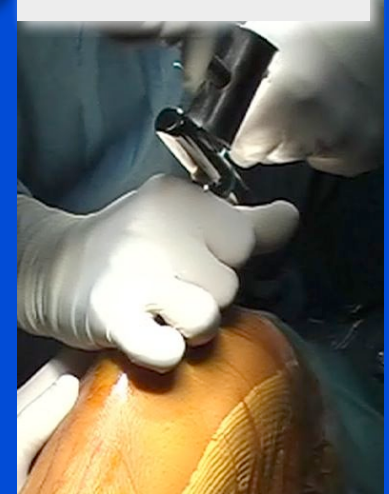
F.U.
15/23

Standart

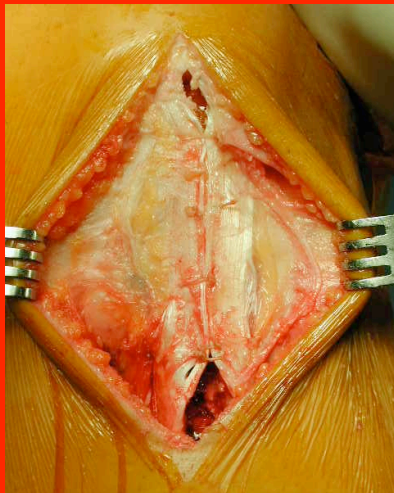


Paratenon Thickness (mm)
2.1
(0.6 - 3.3)

MIS

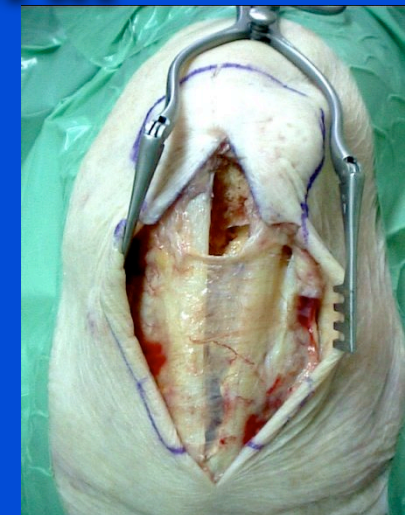


Distance PT medial / lateral
(mm)



0

4
(6.7 - 1.8)



Conclusion

- MIS technique
 - Incision Size < 35 mm
- But blind technique :
 - Learning curve
 - High demanding procedure
 - 15 Excellent Cylindrical Graft
 - 8 Average Quality Graft
 - 1 Bad graft
- Functional Benefit ??
 - Infrapatellar Nerve Preservation
 - Paratenon Preservation



Functional Benefit

- Yes
 - ↘ Mean Sensitivity Loss
 - Knee Walking test +
- Objective Score
 - IKDC =
 - Telos =
- No
 - Subjective Results =
 - Anterior Knee Pain =



To be Continued ?

- Longer F.U.
 - Objective Results
 - Subjective Results
 - Anterior Knee Pain
 - Echography ?
- Device Improvement
+
Surgical Improvement
 - Reliability

