



Meniscal Wrapping Regeneration Technique is The Efficient Tool to Save The Meniscus in The Young Athletes.

Tomasz Piontek, Kinga Ciemniewska-Gorzela, Michał Słomczykowski,  
Paweł Bąkowski

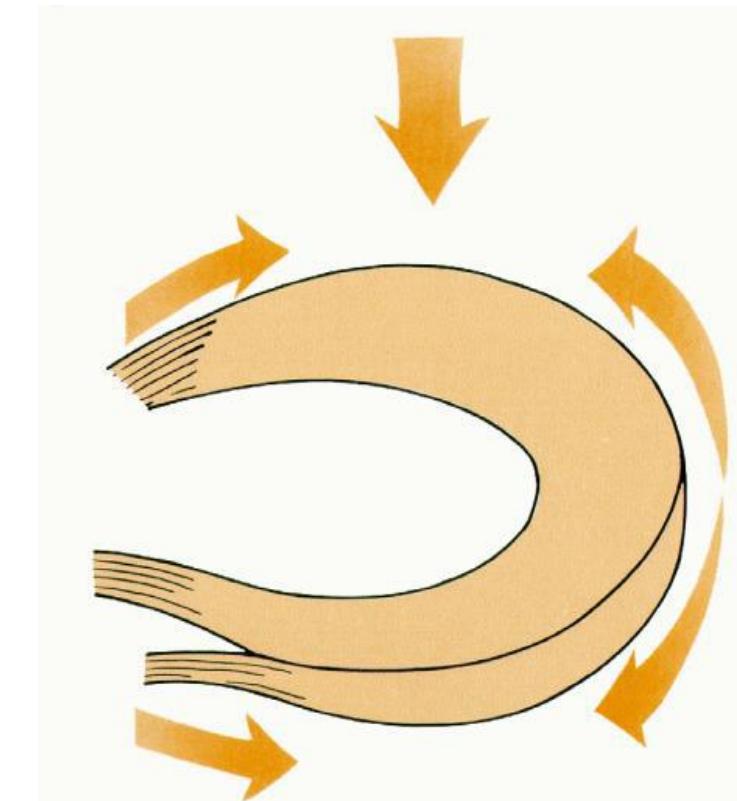
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# We need the meniscus

- load transmission
- shock absorption
- joint stability
- joint lubrication
- proprioception



Arnoczky SP

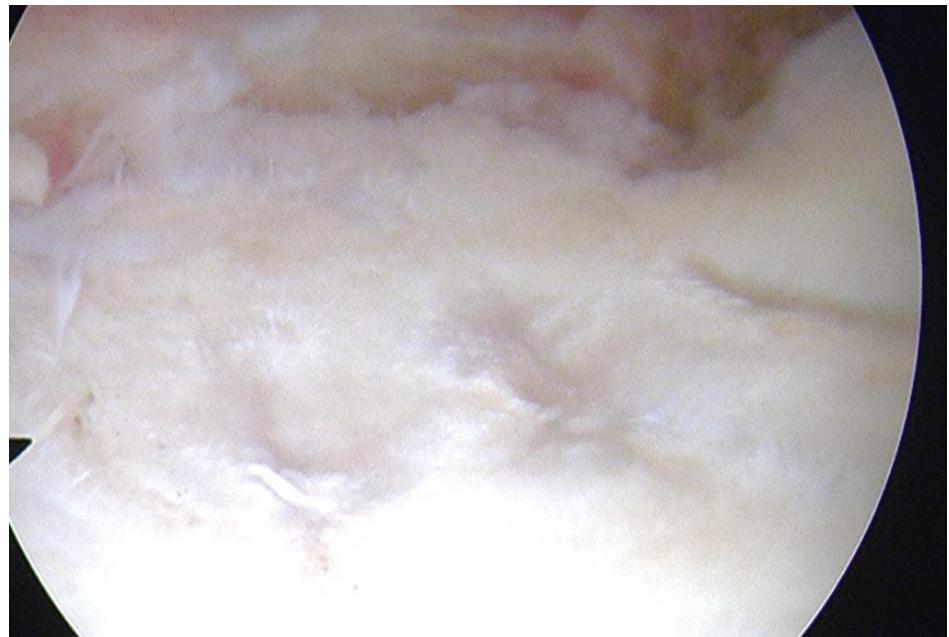
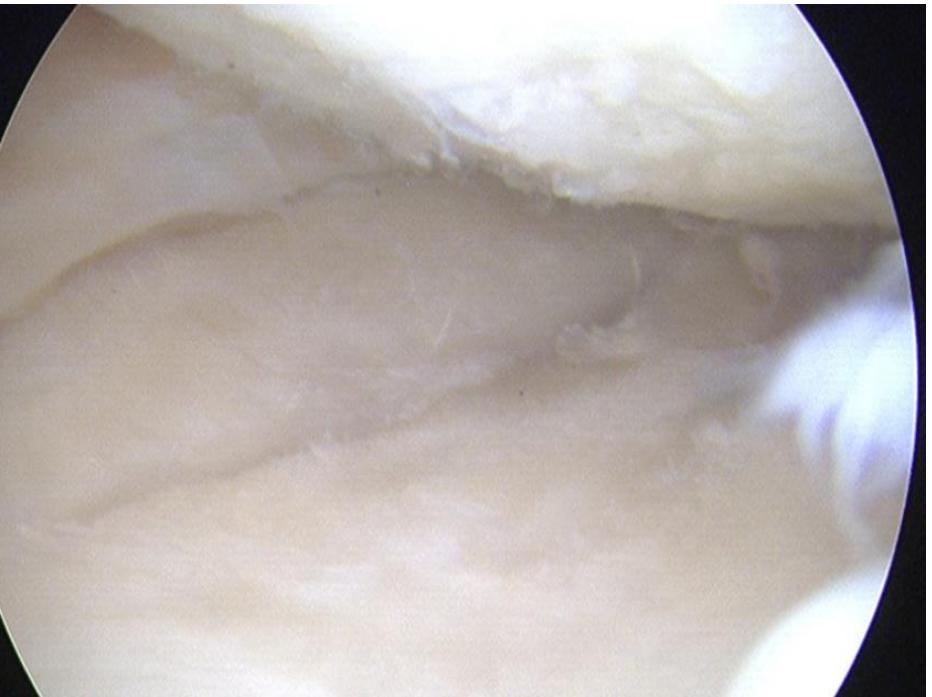


The meniscus transmits  
approximately 50%  
of the contact force in the medial  
compartment  
And greater than 50% in lateral  
compartment

Clinical Results of Meniscus Repair in Patients  
40 Years and Older

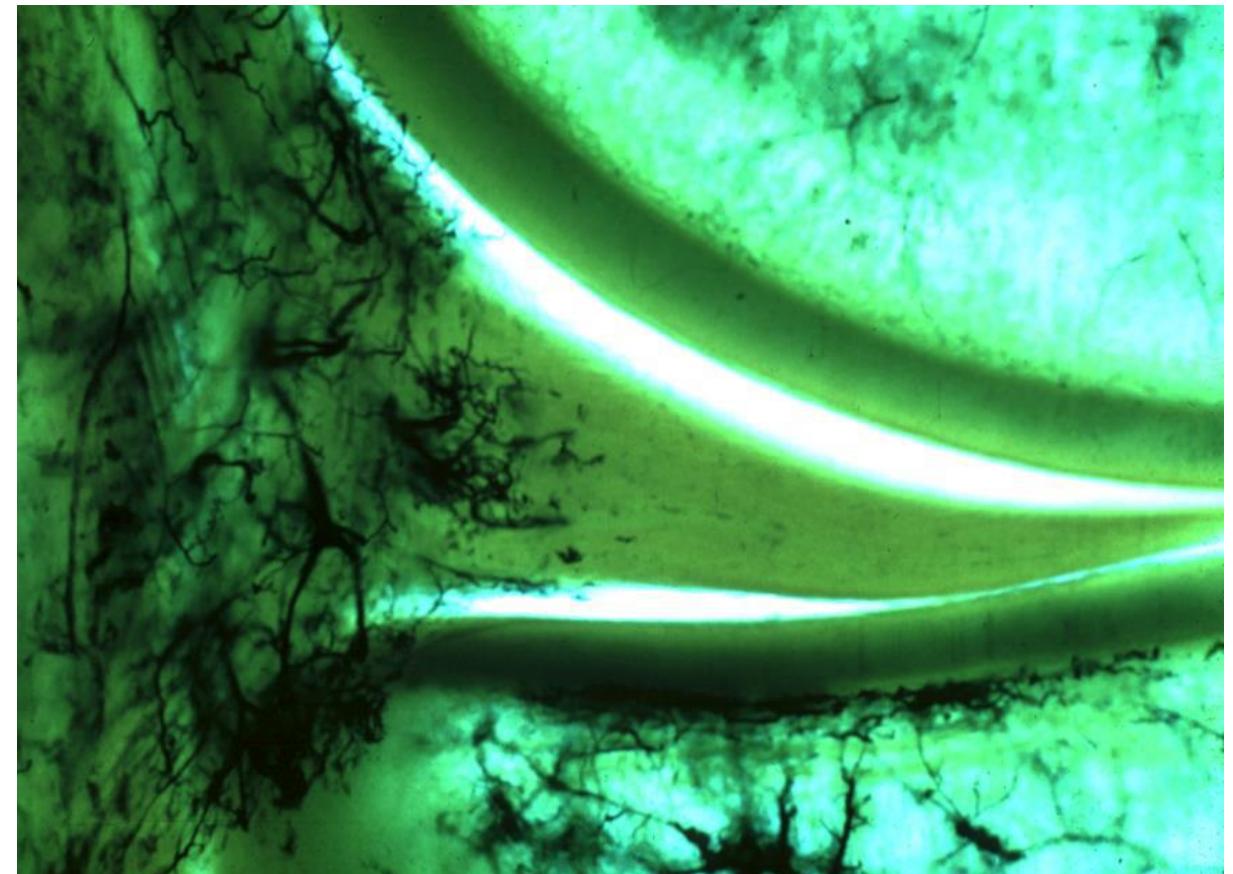
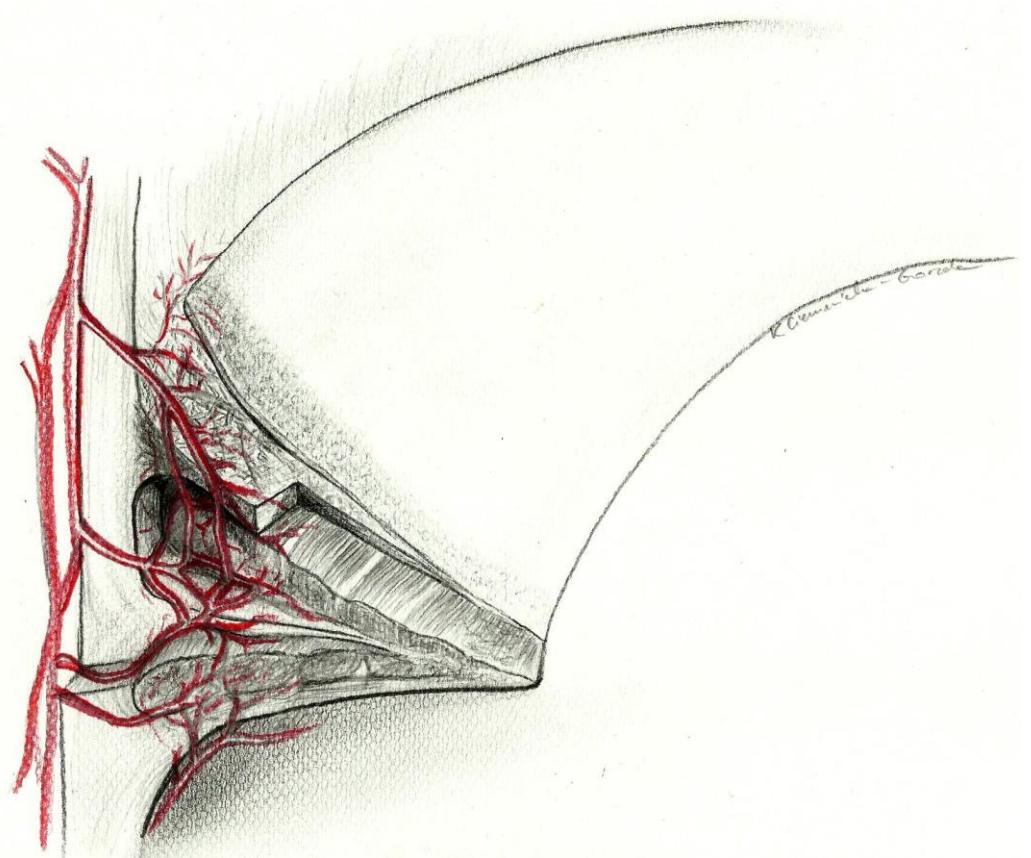
Gene R. Barrett, M.D., Mark H. Field, M.D., Stephen H. Treacy, M.D., and Cynthia G. Ruff, M.S.

## *Goal: Chondroprotection*



Piontek T.

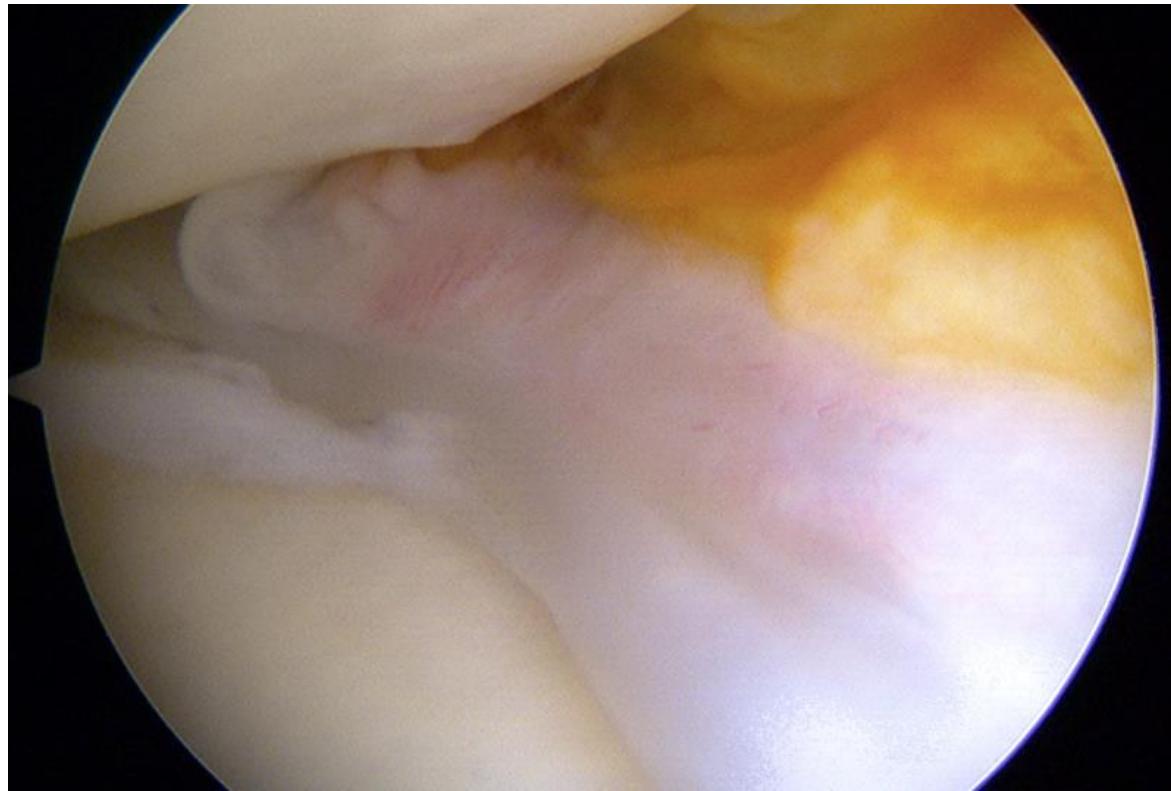
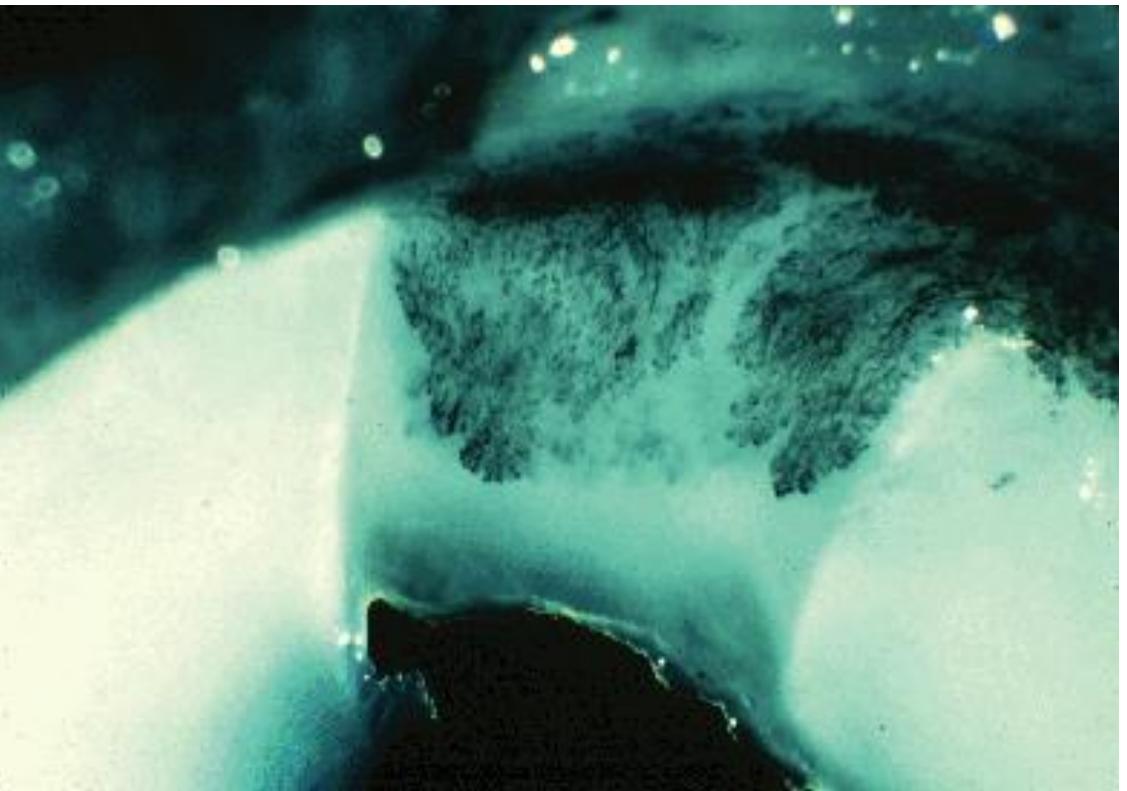
- blood supply



Arnoczky SP, Warren RF: Microvasculature of the human meniscus.  
Am J Sports Med 1982; 10: 90-95

# Factors in meniscal healing

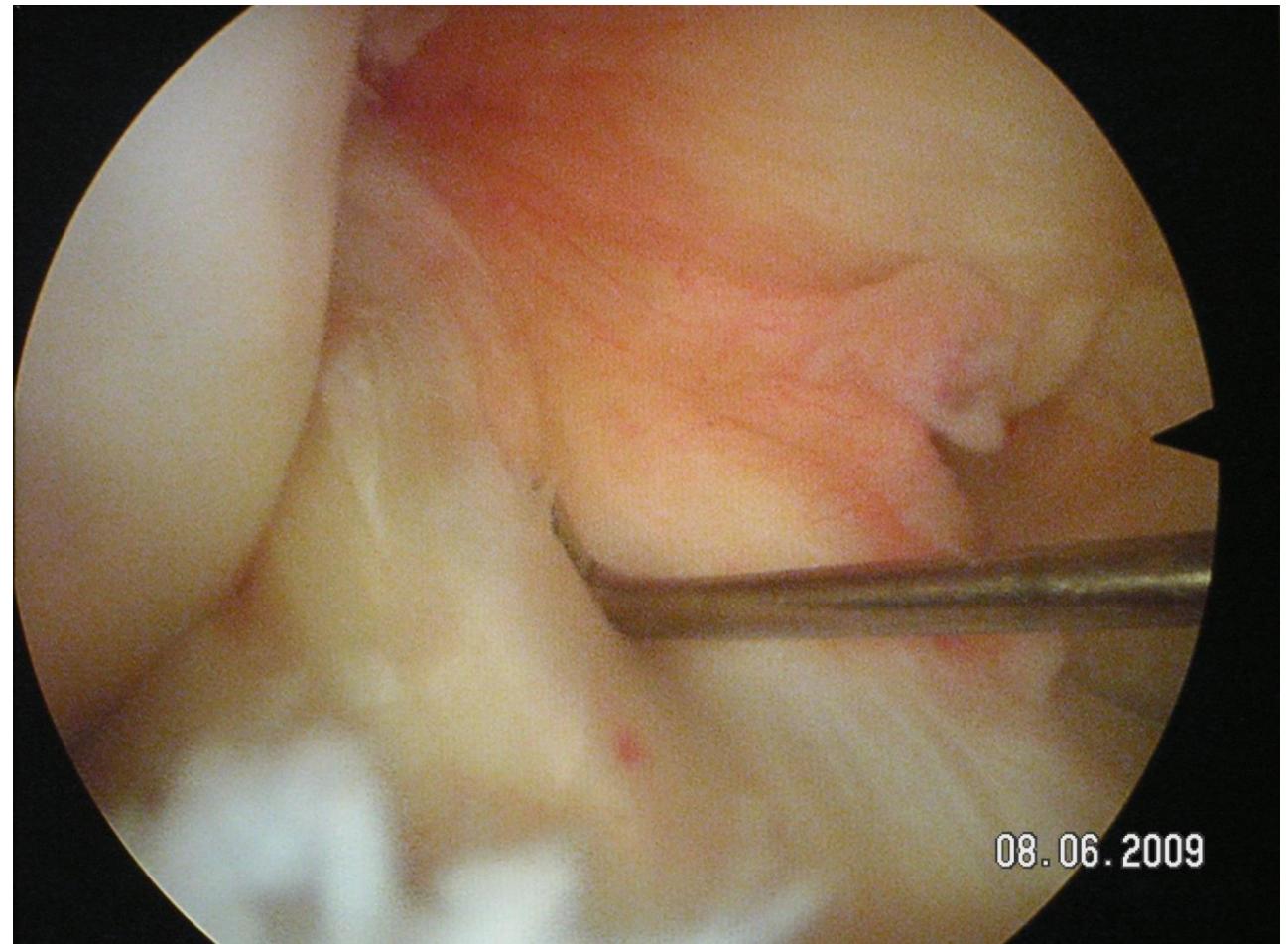
- blood supply
- reparative cells



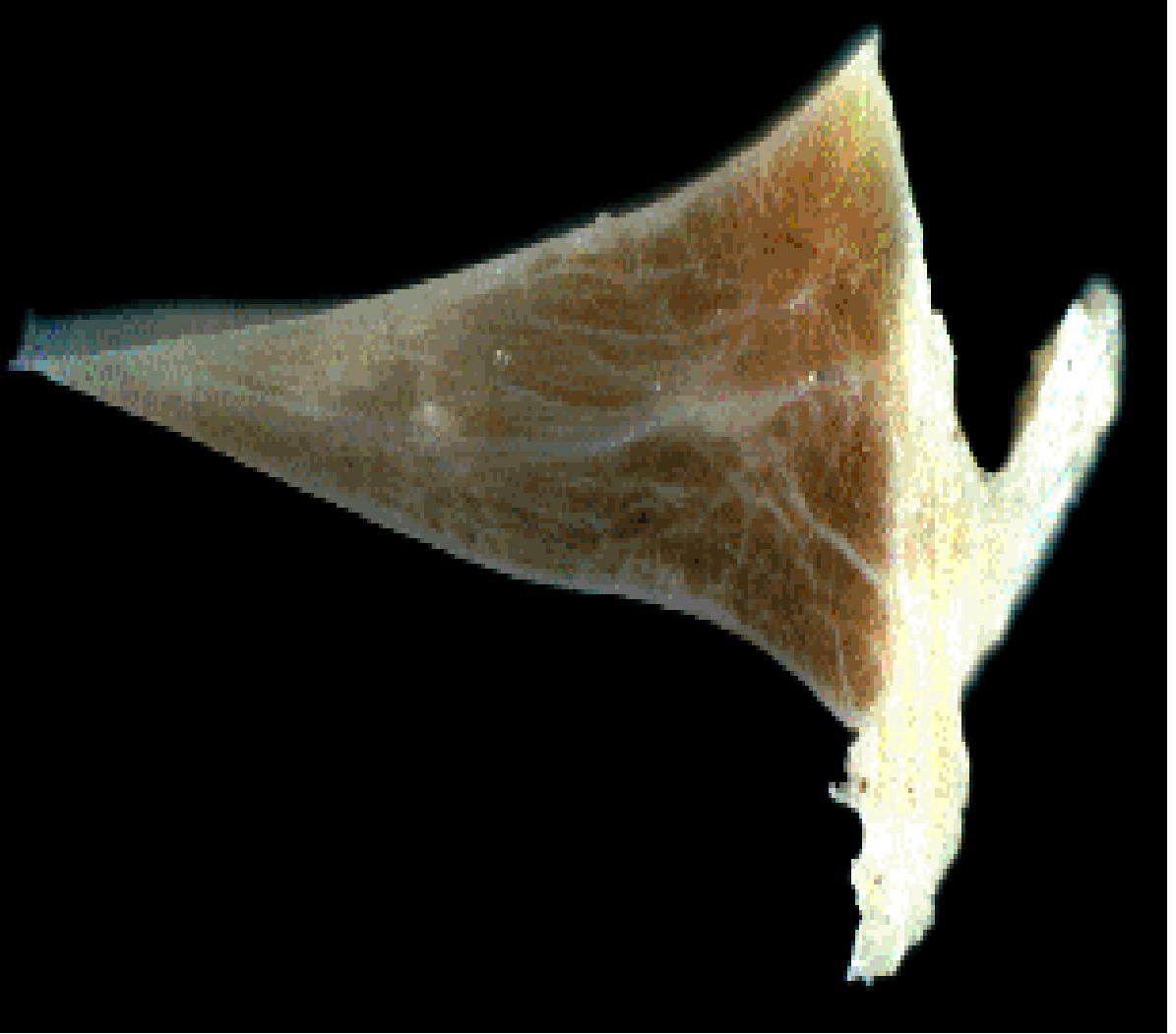
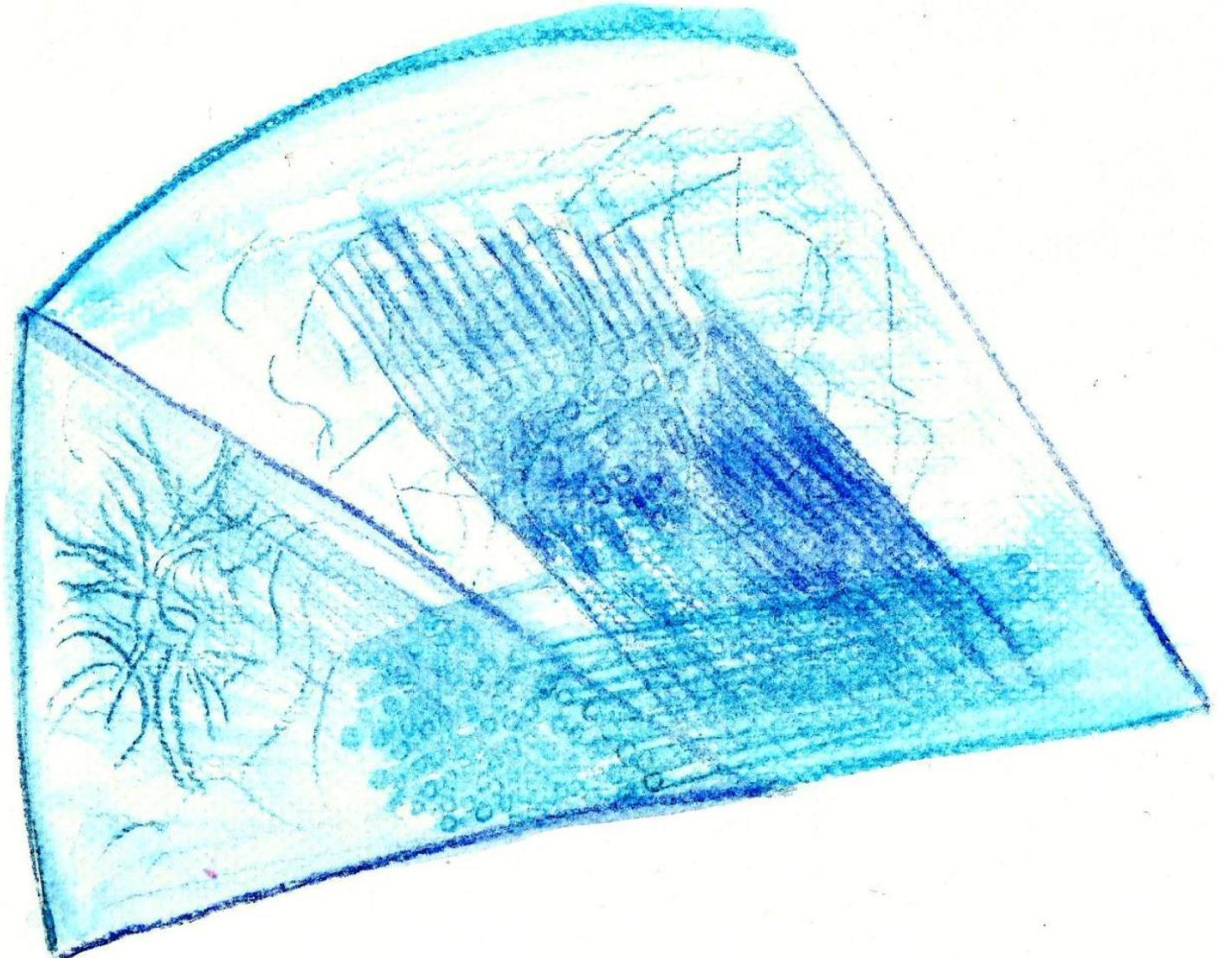
A meniscus 6 weeks following the creation of a radial lesion. The fibrovascular scar tissue has filled the defect, and vascular proliferation from the synovial fringe can be seen. (From Arnoczky SP, Warren RF. Microvasculature of the meniscus and its response to injury: an experimental study in the dog. Am J Sports Med. 1983;11:131; with permission.)

# Factors in meniscal healing

- blood supply
- reparative cells
- additional injuries



# Meniscus healing and structures

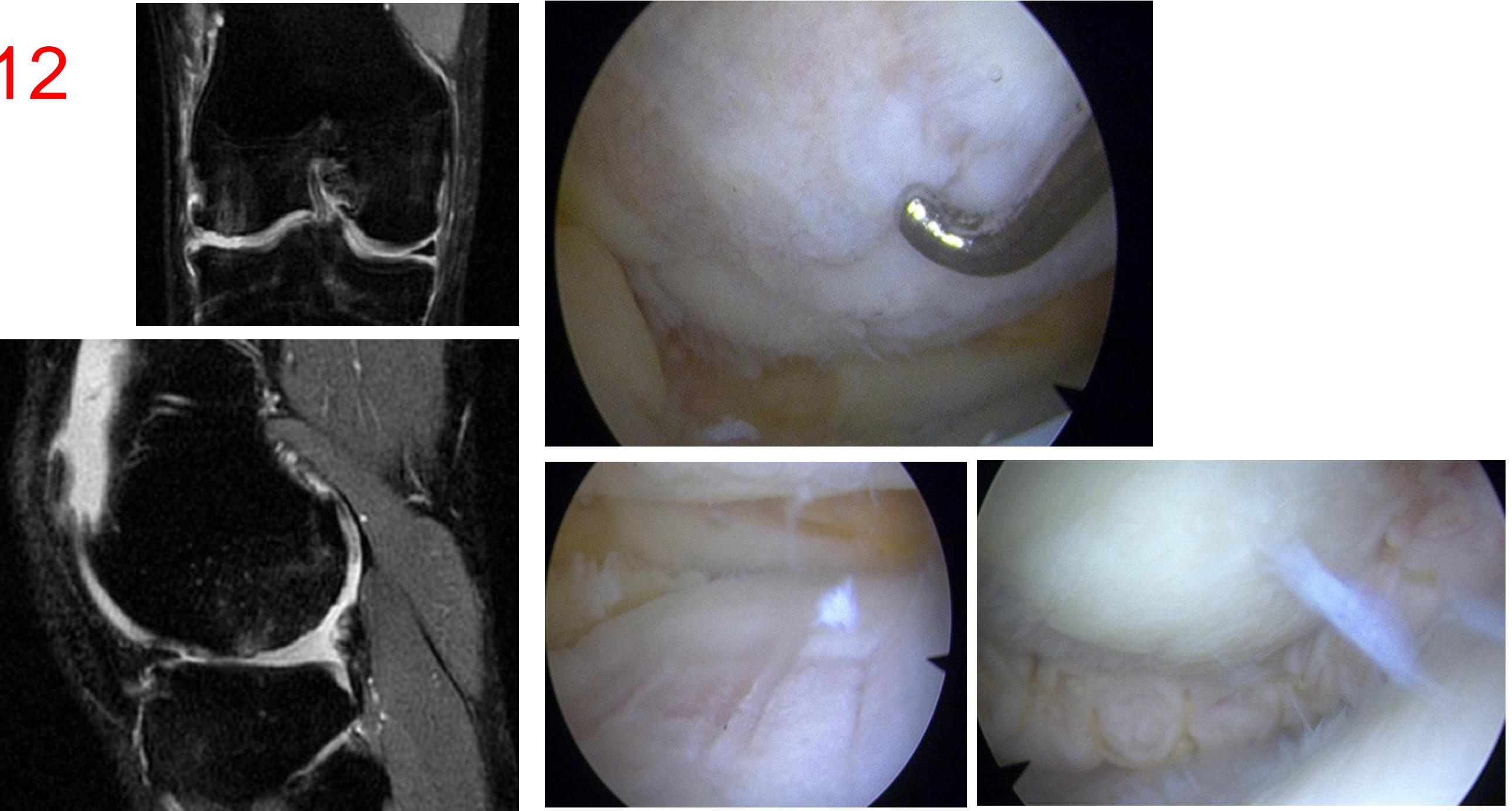


Van de Breevaar Bravenboer J, In de Maur CD, Bos PK, Feenstra I, Verhaar JA, Weinans H et al. Improved cartilage integration and interfacial strength after enzymatic treatment in a cartilage transplantation model. *Arthritis Res Ter.* 2004;6:469-75

# Degenerative changes after meniscectomy

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2003 - 2012



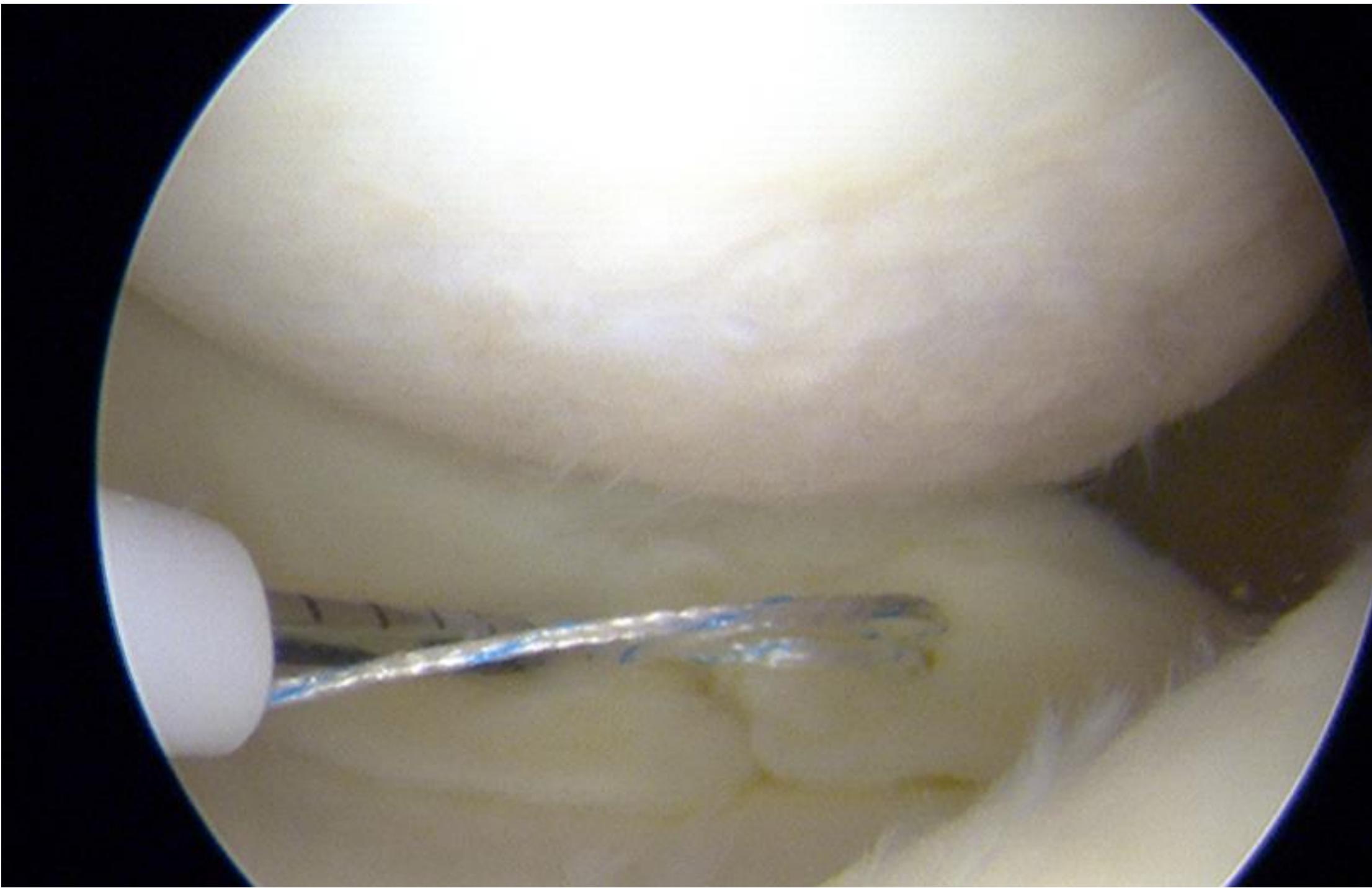
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# Meniscus

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OF EXCELLENCE

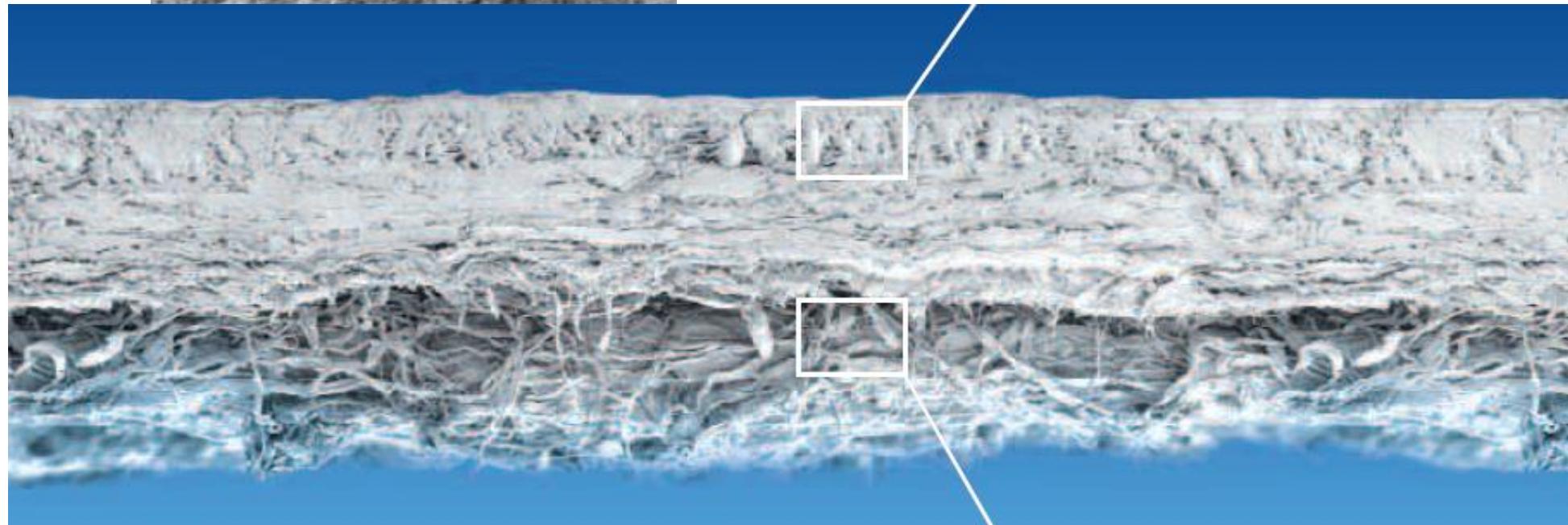


## Inclusion criteria:

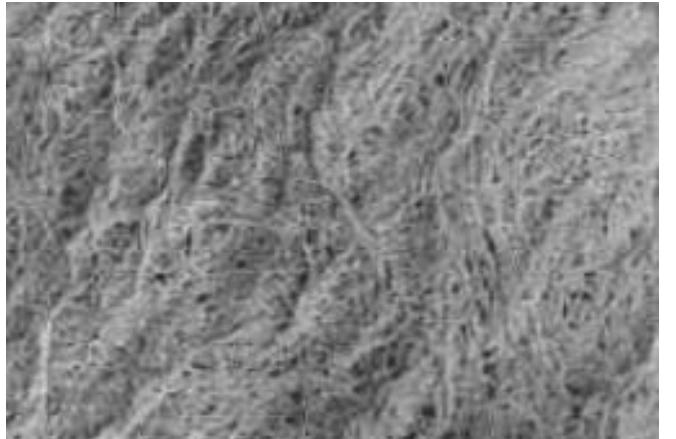
1. full-thickness, combined meniscal tear greater than 20 mm in length
2. horizontal and radial tear
3. tear location reaching more than 6 mm from the menisco-capsular junction including the avascular zone
4. both degenerative and non-degenerative meniscus

# Collagen matrix

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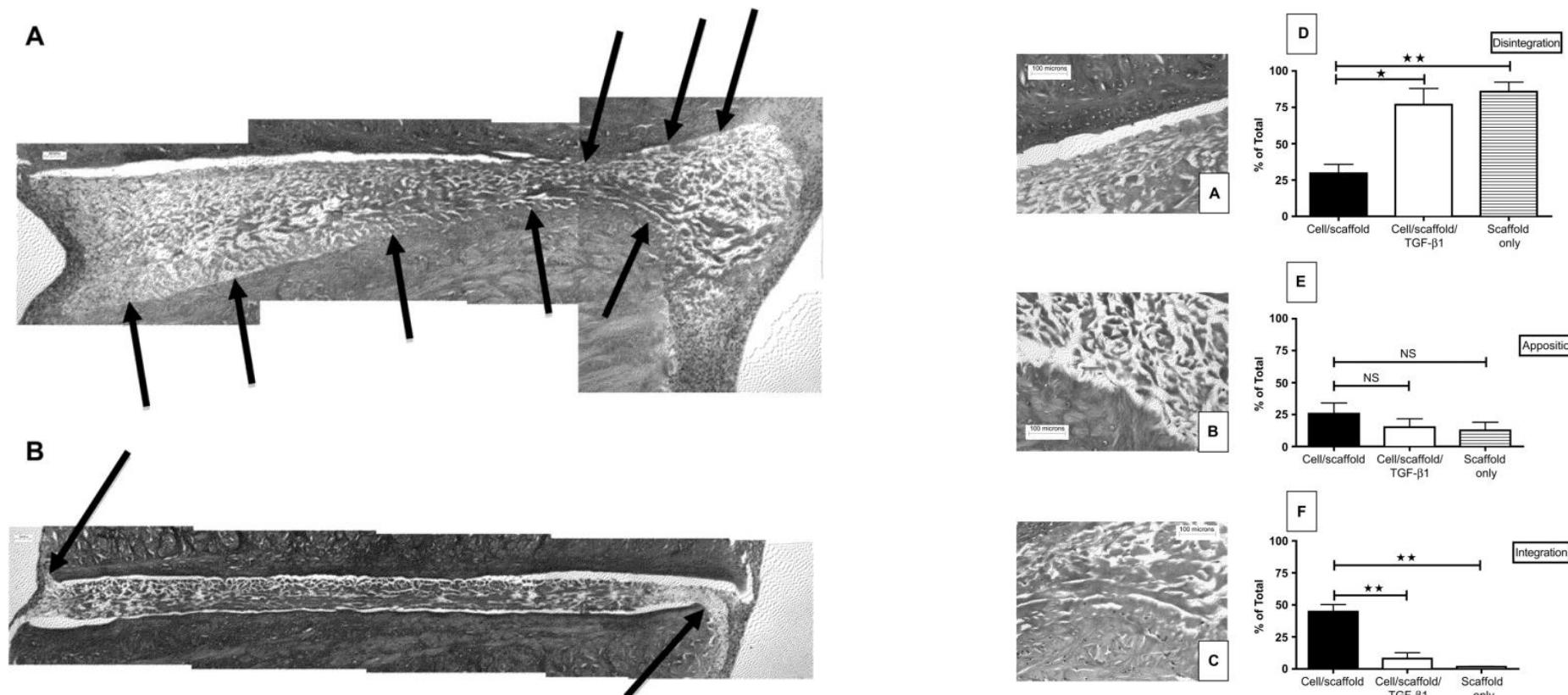


Compact, cell occlusive  
surface



Porous, cell adhesive  
surface





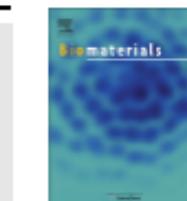
Biomaterials 31 (2010) 2583–2591



Contents lists available at ScienceDirect

Biomaterials

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## Repair of meniscal cartilage white zone tears using a stem cell/collagen-scaffold implant

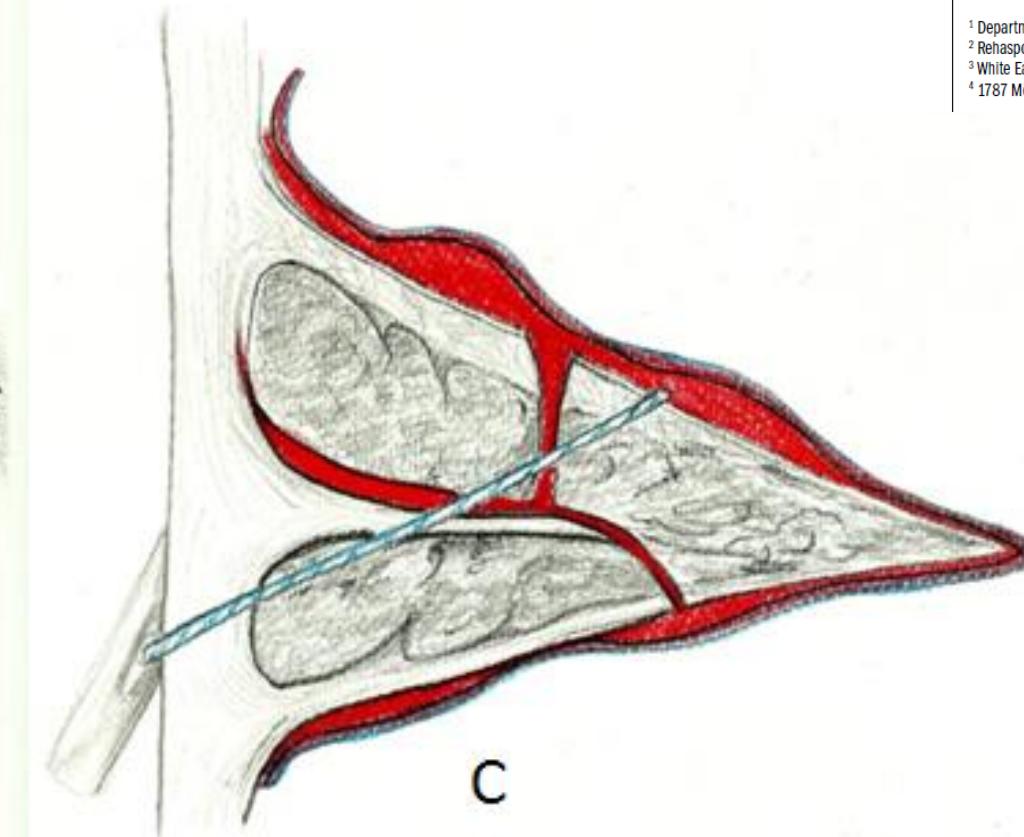
Moreica B. Pabbruwe<sup>b,c</sup>, Wael Kafienah<sup>a</sup>, John F. Tarlton<sup>c</sup>, Sanjay Mistry<sup>a</sup>, Dennis J. Fox<sup>a</sup>, Anthony P. Hollander<sup>a,\*</sup>

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# Collagen scaffold wraping technique



Received: 2012.05.28  
Accepted: 2012.07.04  
Published: 2012.07.31

## Allarthroscopic technique of biological meniscal tear therapy with collagen matrix

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Michał Słomczykowski<sup>3</sup>, Roland Jakob<sup>4</sup>

<sup>1</sup> Department of Pediatric Orthopedic Surgery, University of Medical Sciences, Poznań, Poland

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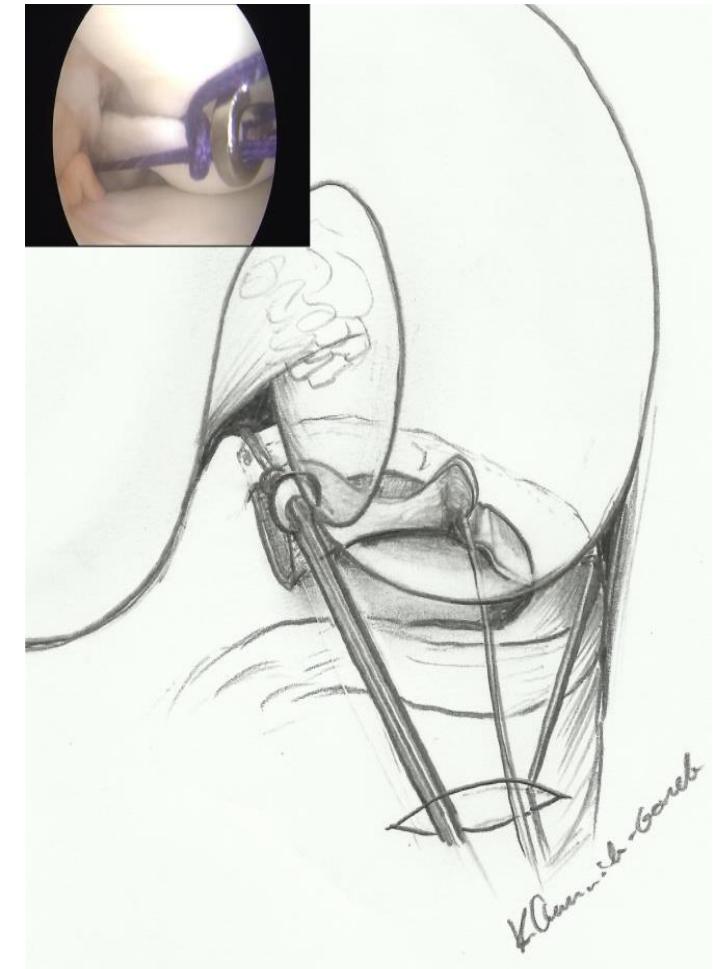
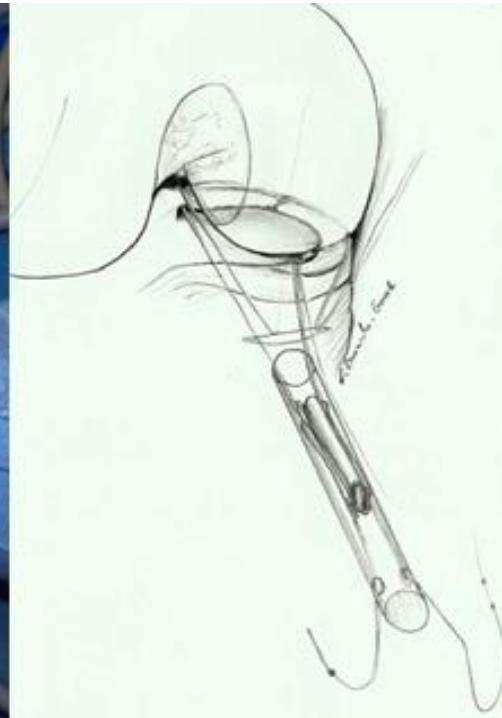
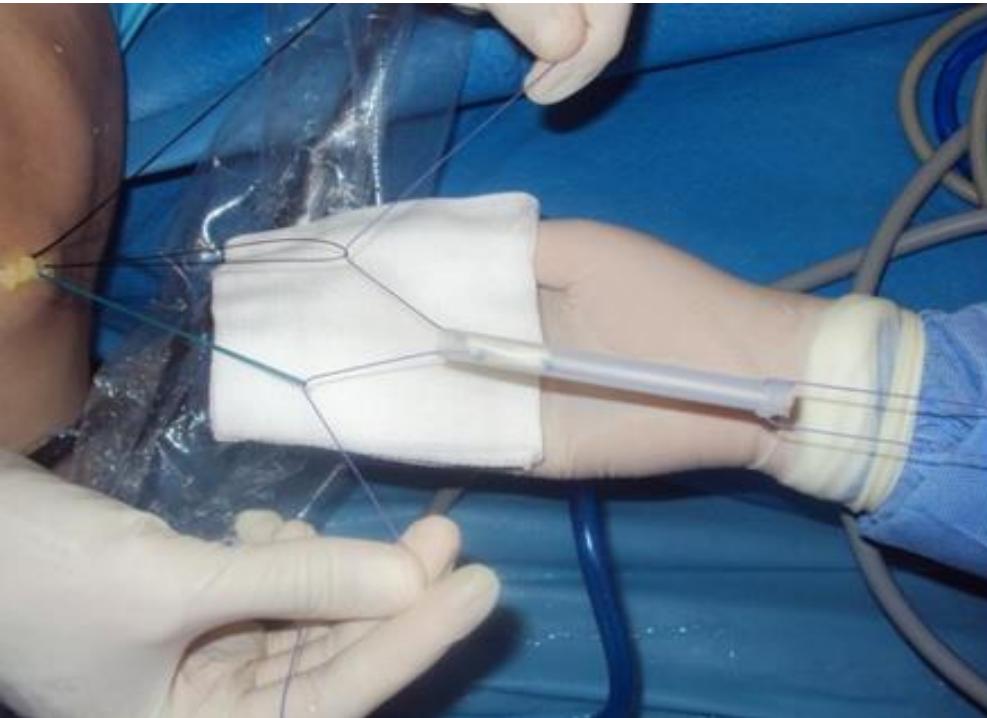
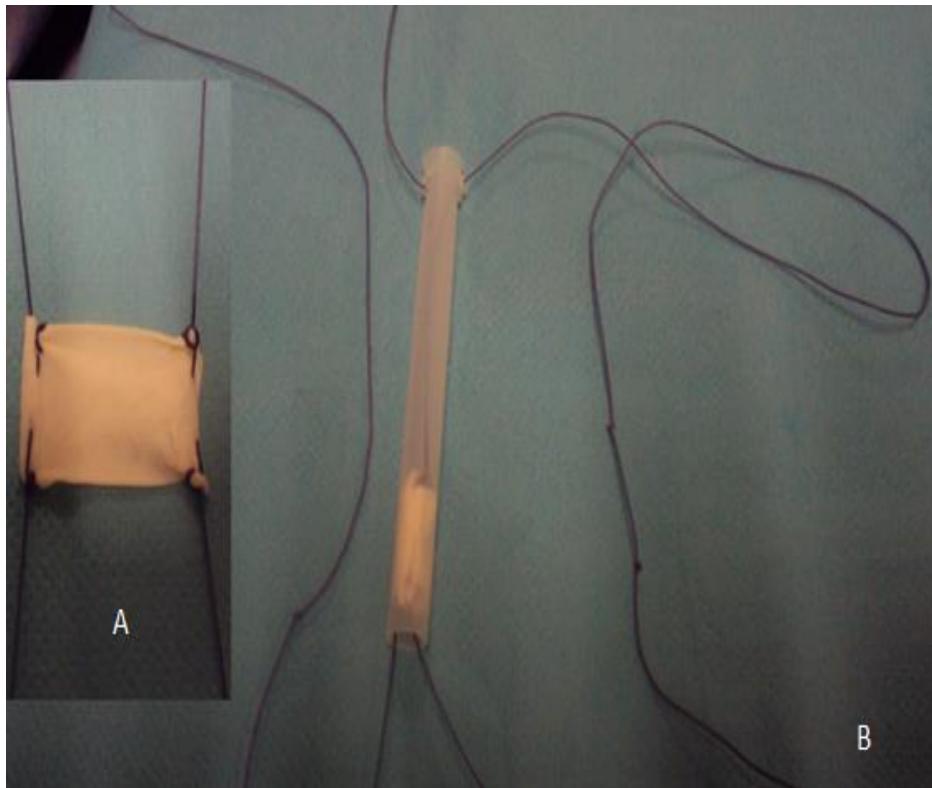
<sup>3</sup> White Eagle Healthcare Consulting, Poland

<sup>4</sup> 1787 Môtier, Route du lac 161, Switzerland



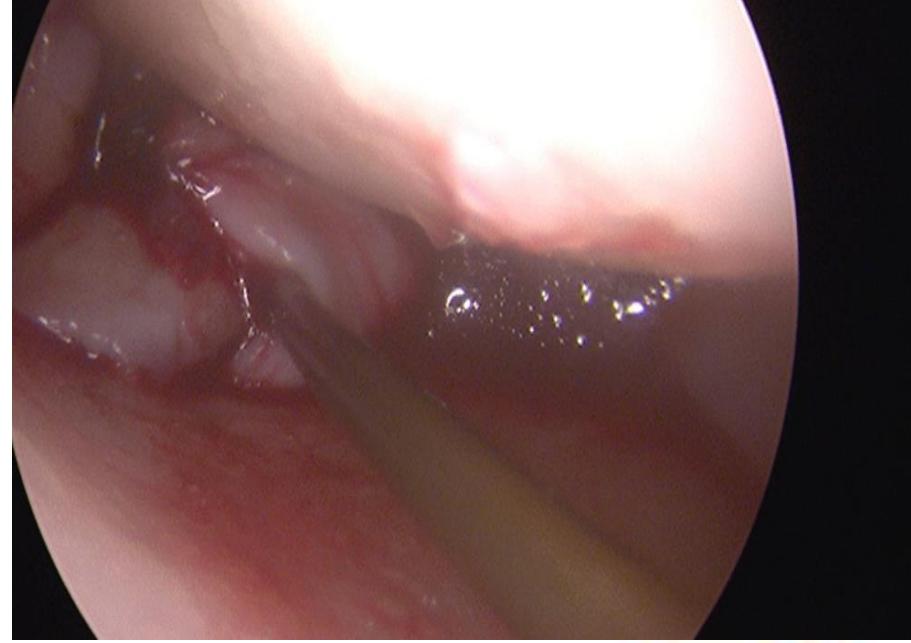
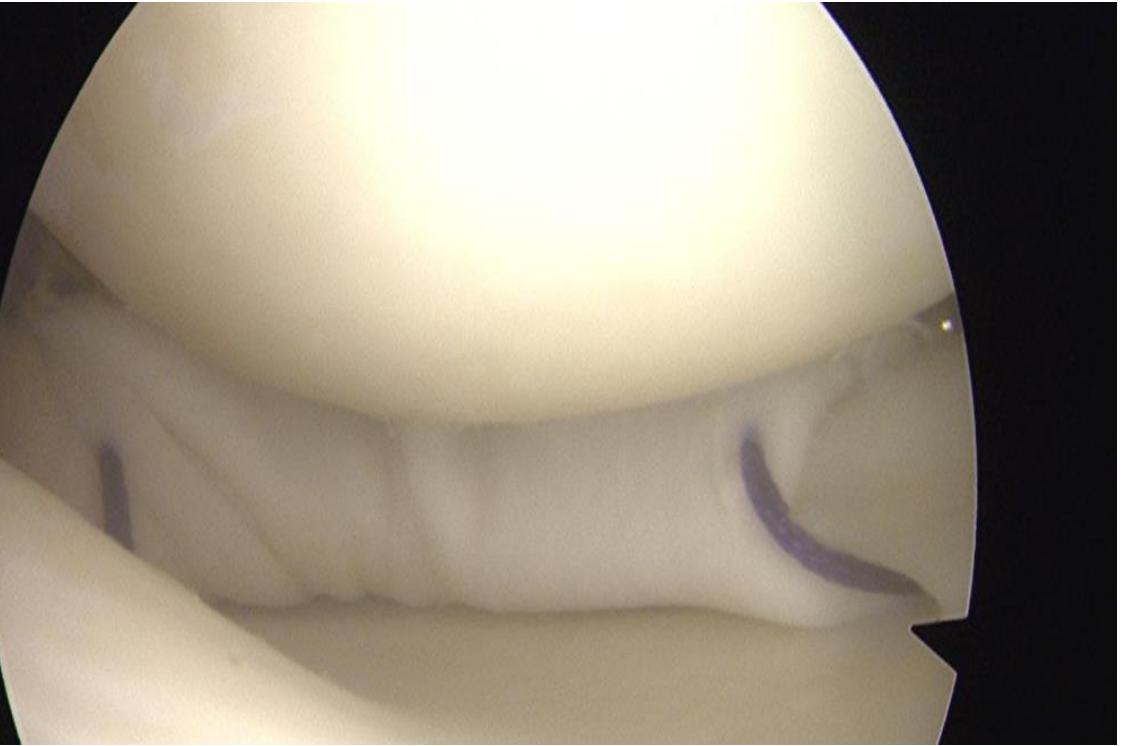
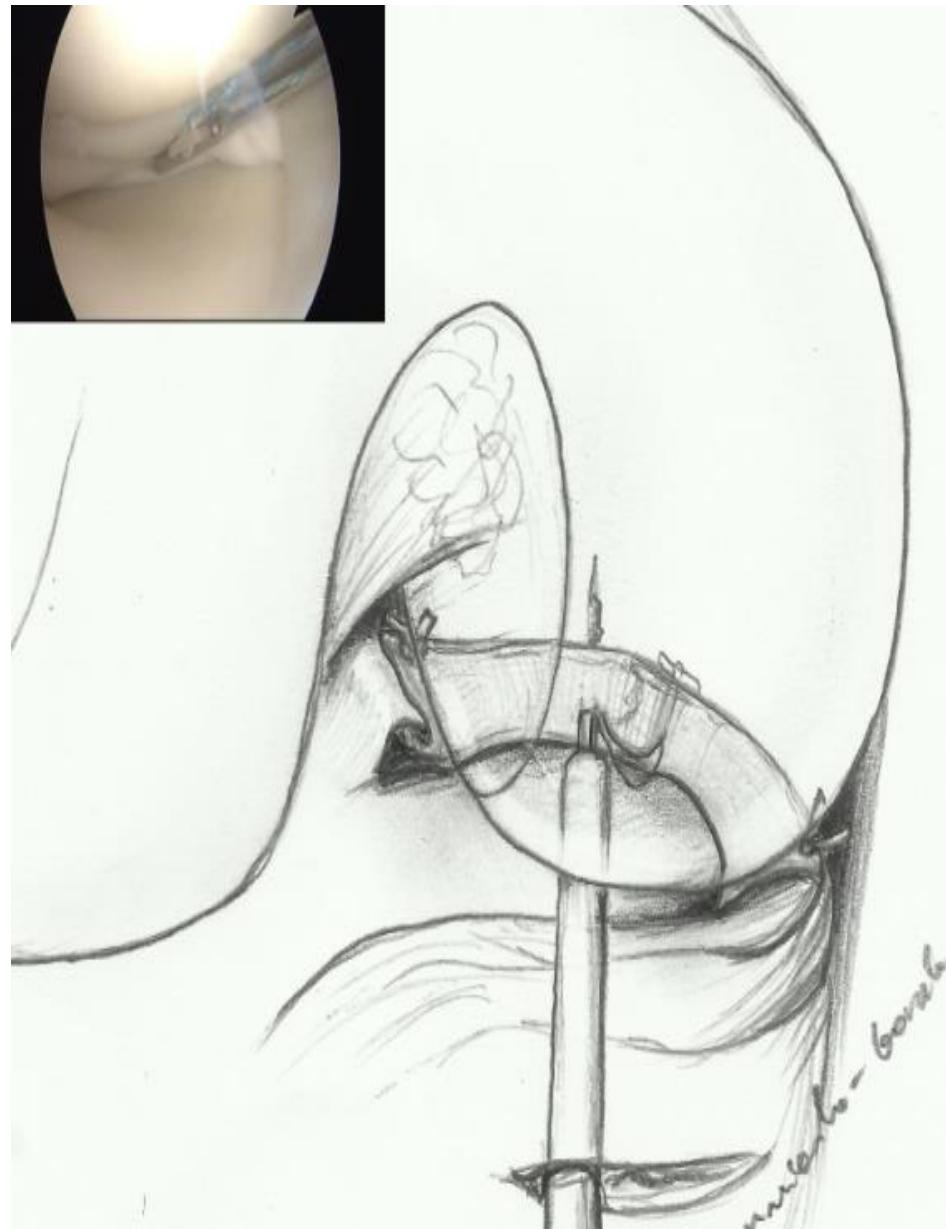
# Collagen scaffold wraping technique

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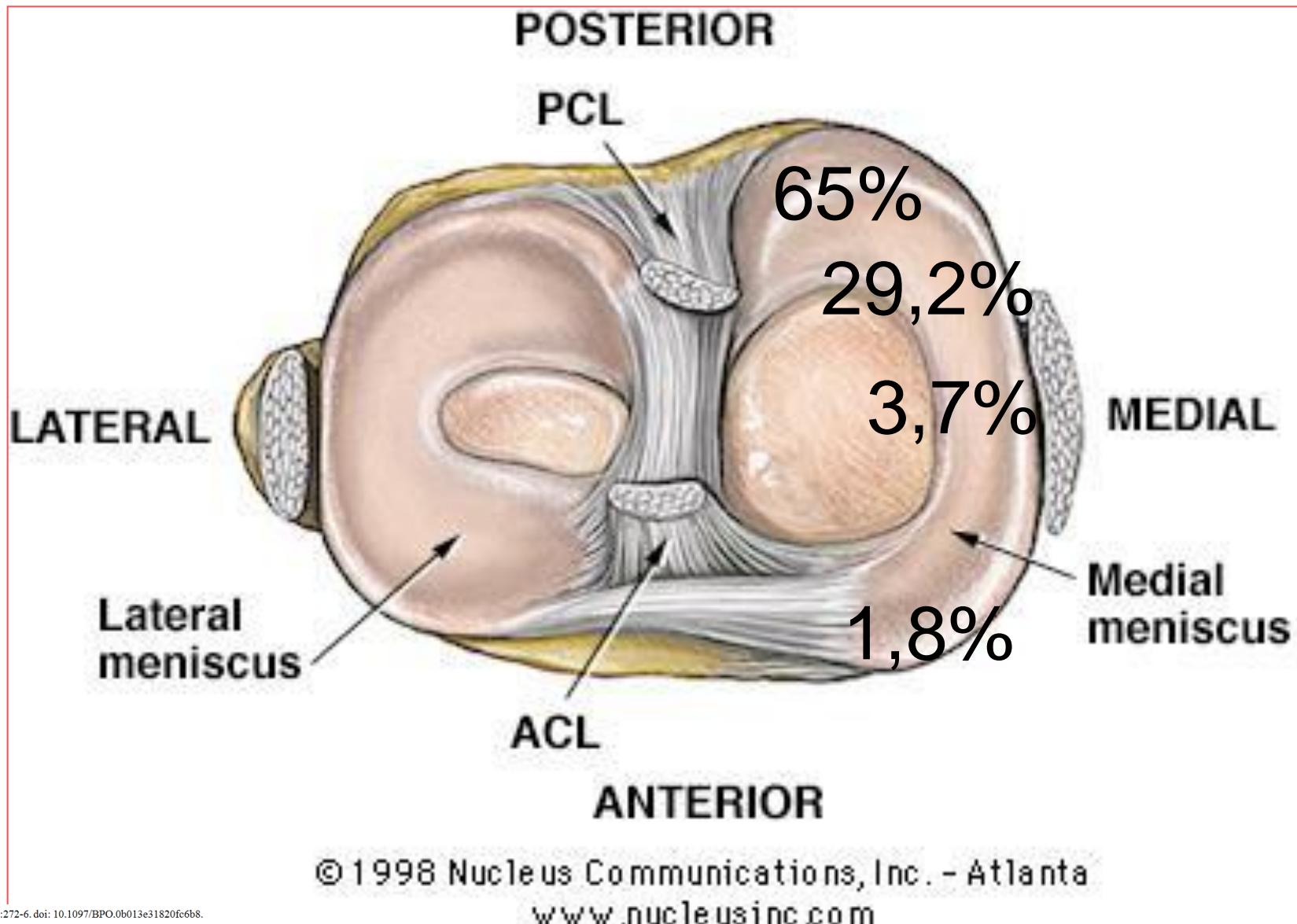
# Collagen scaffold wraping technique

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# Meniscal tear in young athletes

- 69% - coexist with ACL rupture
- rehabilitation protocol
- return to sport



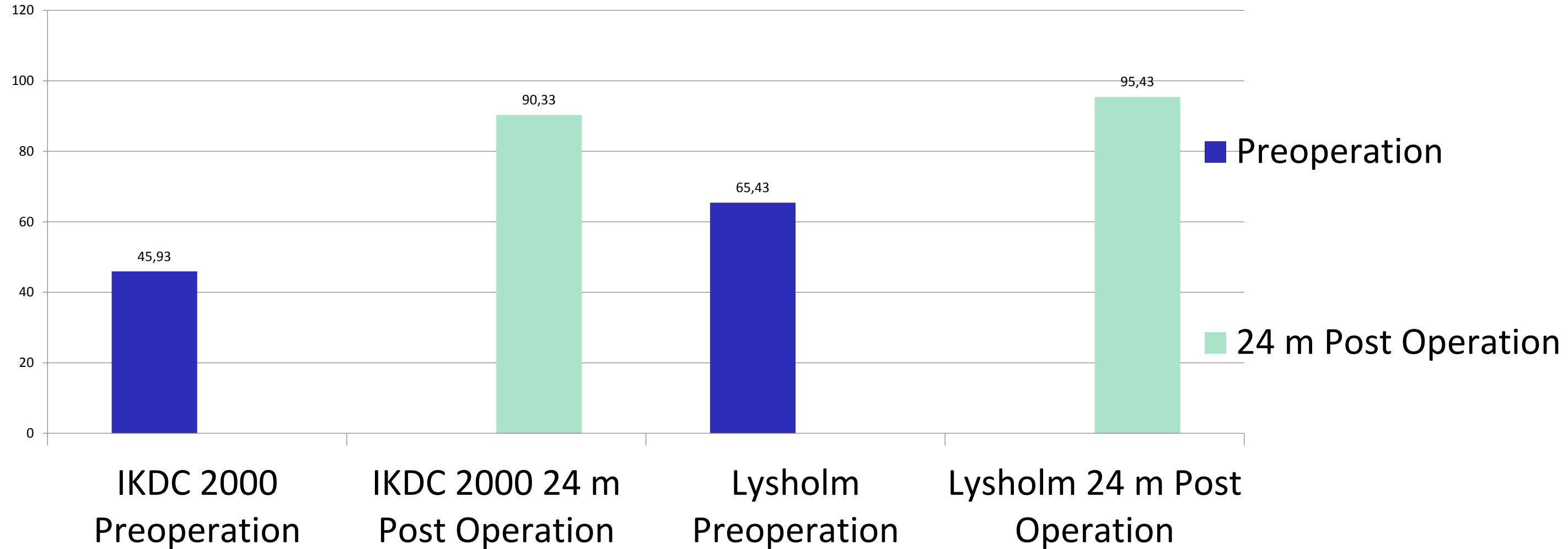
## Acute traumatic knee effusions in children and adolescents.

Luhmann SJ.

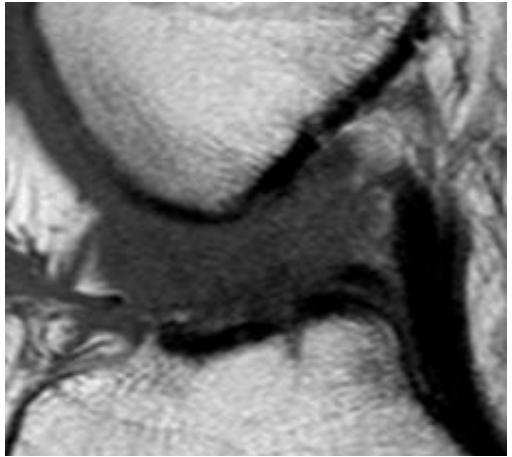
# Results

- 8 athletes
- meniscal tear coexists with ACL rupture
- 2 year follow-up
- 100% return to pre-injury sport level
- good functional outcome

# Results



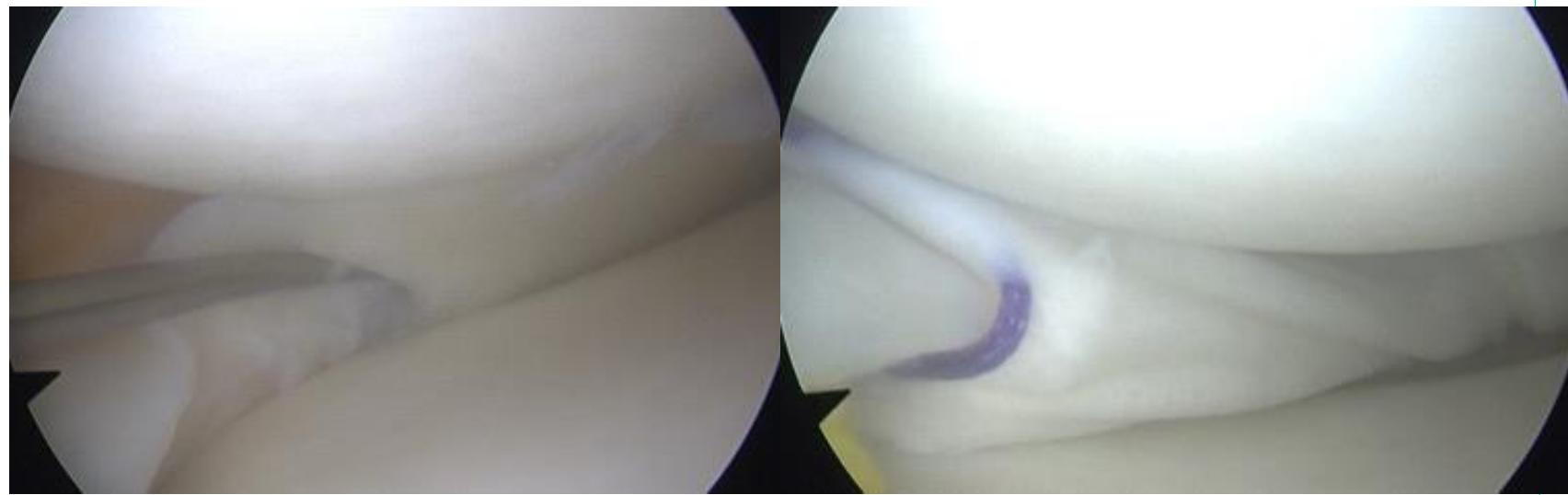
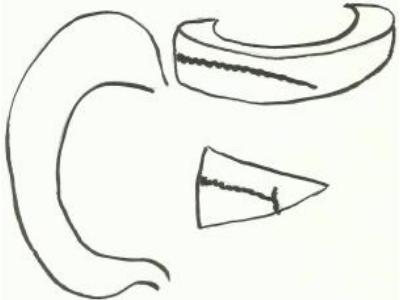
**PRE OPERATIVE**



IKDC subj **42**

Lysholm **70**

Barrett 1.1.1.1



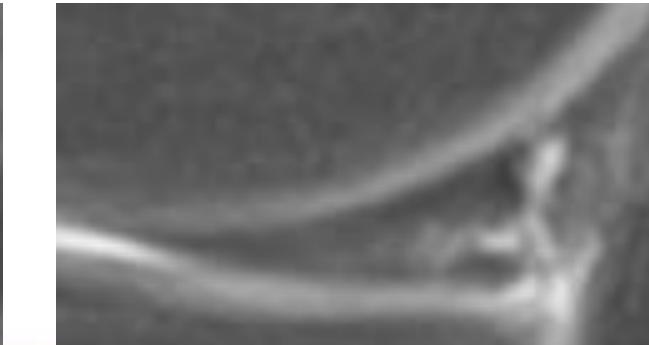
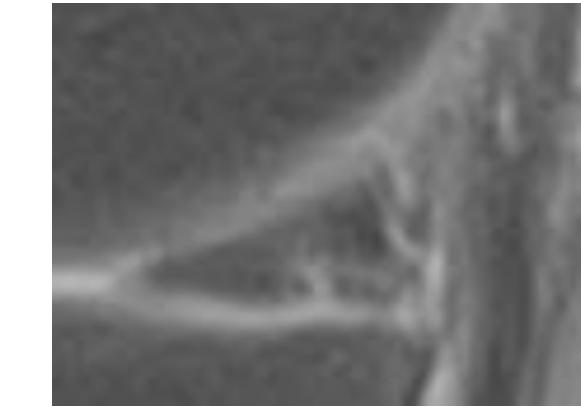
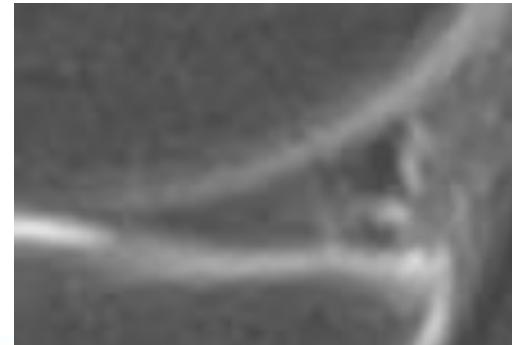
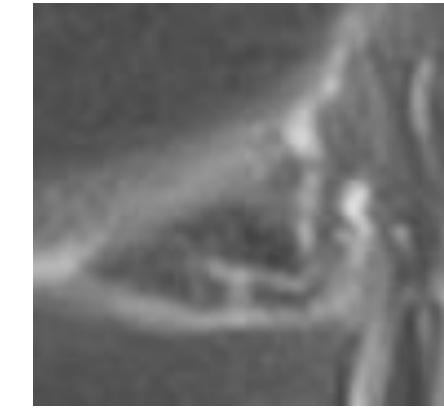
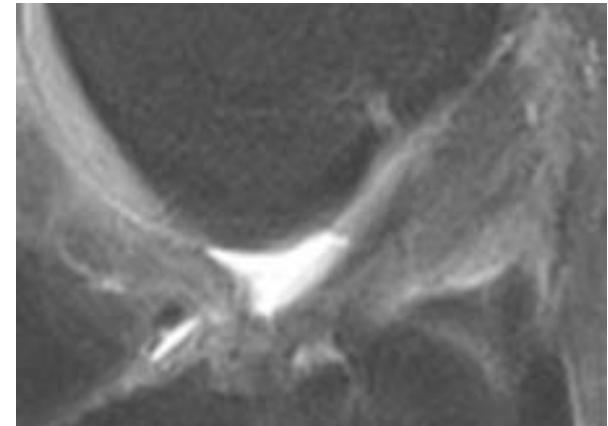
Notes and Remarks: **ACL reconstruction with hamstrings graft**

**24 Months FU**

IKDC subj **95,4**

Lysholm **95**

Barrett 0.0.0.0



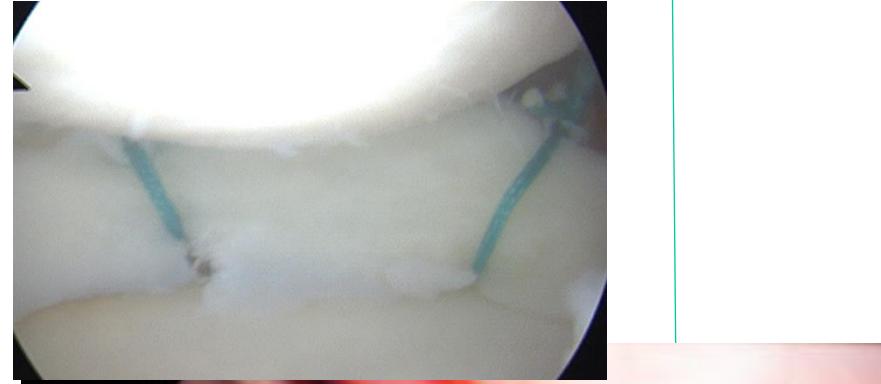
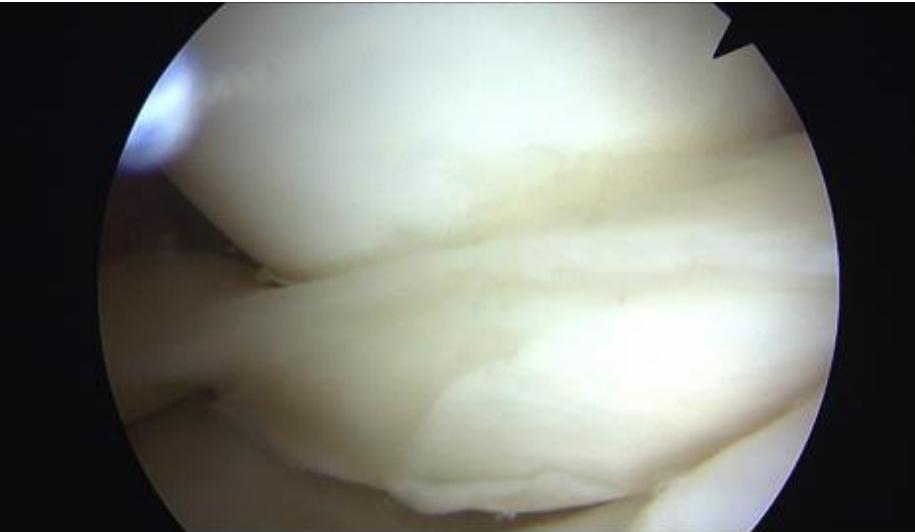
## PRE OPERATIVE



IKDC subj 48

Lysholm 64

Barrett 1.1.1.1



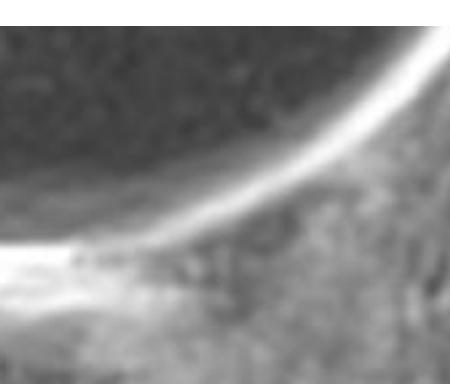
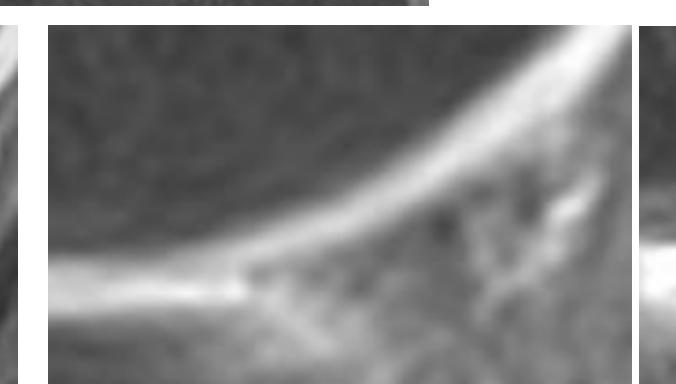
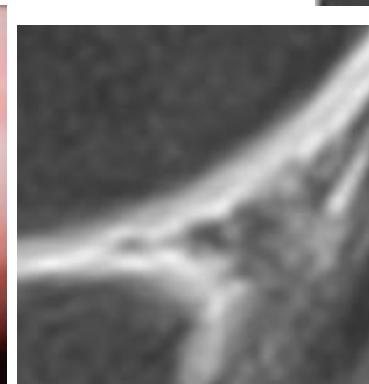
Notes and Remarks: ACL reconstruction with hamstrings graft

## 24 Months FU

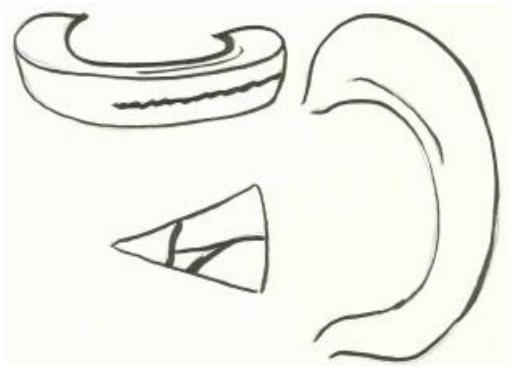
IKDC subj 95,4

Lysholm 100

Barrett 0.0.0.0



PRE OPERATIVE



IKDC subj 32

Lysholm 37

Barrett 1.1.1.1



Notes and Remarks: ACL reconstruction with hamstrings graft

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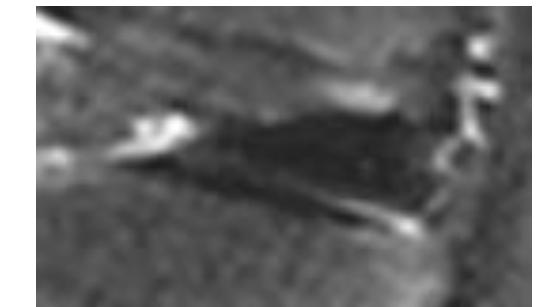
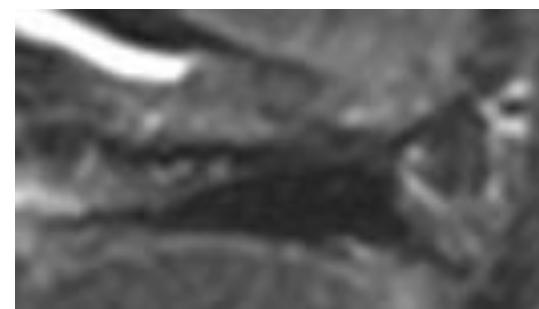
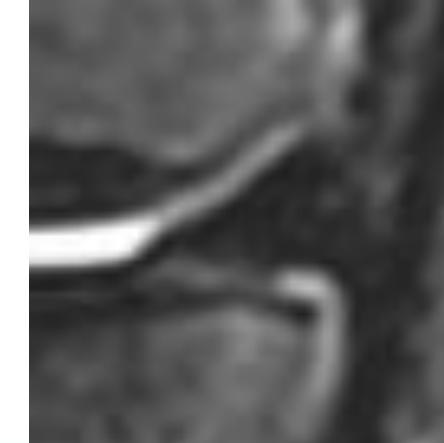
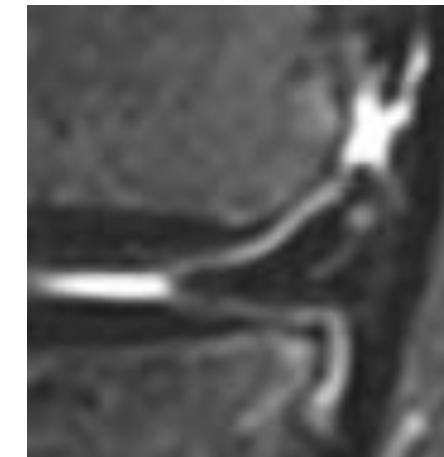
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24 Months FU

IKDC subj 87,4

Lysholm 100

Barrett 0.0.0.0



# Functional Biomechanical Evaluation – return to sport

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FMS



DELOS



MTD



Biodex



# Take home message

The combined type of an injured meniscus  
can be saved without menisectomy  
proving good results.



Thank You for your attention.

Paweł Bąkowski

pawel.bakowski@rehasport.pl

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